FEED 11-DEC-74 12:05 31488

Where to send help info

received your message, no problems, unrecorded apparently does nothing except not include it incatalogs (we have not confirmed this), Thanks FEED/Rob 1

FEED 11-DEC-74 12:05 31488

Where to send help info

(J31488) 11-DEC-74 12:05;;;; Title: Author(s): Special Jhb Feedback/FEED; Distribution: /KIRK([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: FEED;

FEED 11-DEC-74 12:20 31489

Directory access, Check groups

Here is a copy of a mesage received by feedback re directory access without password, Appears that the nexw directories have not been included in the RADC fgroup, Plase check, We sould also cnfirm that they should be included (if not aready) with Stone, Let us know, thanks, FEED/Rob 1

11-DEC-74 0826-PDT CAVANO: dir connections
Distribution: FEEDBACK, kennedy, cavano
Received at: 11-DEC-74 08:26:17 2

Try connecting to dir that have been newly created,,,like STINSON or SLIWA, Dir name alone does not work, It answers with 'INCORRECT PASSWORD', It does seem that the older directories seem to be immune to this, Le tme know if you discover a similar discrepency. 2a

FEED 11-DEC-74 12:20 31489

Directory access, Check groups

(J31489) 11-DEC-74 12:20;;;; Title: Author(s): Special Jhb Feedback/FEED; Distribution: /JCP([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: FEED;

directory request from CRAIN

Here is a copy of a directory request, Cna you confirm that they are allowed to have another directory, etc, and Cran is the prooper requester? thanks, P.S. Tell Peters or someone to push it I am on vacation, FEED/Rob 1

11-DEC-74 1220-PDT CRAIN: AFDSDC Directories at office 1
Distribution: FEEDBACK, mclindon, crain
Received at: 11-DEC-74 12:20:10 2

Hi,
sorry I took so long to get back to you, i've been(and still am) up to
my ears in (VERY HUNGRY) alligators. First of all, the accounts ARIAIL,ZIEBELL,and MSTONE are working fine,
On the other hand, I think we have had a synchronization problem in
the STALOG account, I think we are both hung in a Waiting Input loop:
To fix that, if the stalog directory and IDENTs havent been set up by the time you read this message, dump all previous information pertaining to that process, and start from scratch with the following: 2a

INFORMATION FOR DIRECTORY REQUEST
Directory Name: STALOG
Account: same as crain
Password: DSDCLG
Alloted Disk Pages: 800
Default Protecton: 770000
INFORMATION FOR INDIVIDUAL IDENT ENTRY (source: NIC requirement)
Name:

Last	First	Middle Initial
Lejeune	Flanoid	F
Adams	Silas	D
Shellhammer	Linda	f
Brantley	Marry	J
Hawes	Iva	D

2ai 2b

Home Organization (If host, use host name): GUNTER
Phone:(205)279-4521 2c

U.S. Mail Address:
STALOG Development Branch
Directorate of Logistics Systems
Air Force Data Systems Design Center
Gunter Air Force Station, Alabama 36114

directory request from CRAIN

Network Mailbox:
STALOG @ OFFICE-1
NLS Mailbox: OFFICE-1
Delivery (Journal or Network):Journal
Function:??

2c1

The sooner this account can be made to appear, the better
Thanks for the help
/Larry Crain

2d

FEED 11-DEC-74 14:01 31490

directory request from CRAIN

(J31490) 11-DEC-74 14:01;;;; Title: Author(s): Special Jhb
Feedback/FEED; Distribution: /JHB([ACTION]) JCN([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: FEED;

Handout given to ARPA Users in DNLS Classes

DNLS FOR TNLS USERS 1

1. USE OF PERIPHERALS 2

Mouse 2a

Three buttons (from left) 1, 2, and 3 2a1

1 - delete character (CTL A) 2a1a

2 - command delete (CTL X) 2a1b

3 - command accept (CTL D) 2a1c

1 & 2 - delete word (CTL W) 2a1d

1 & 2 - if held down characters typed will be entered as viewspecs 2a1e

2 & 3 - if held down, characters typed will be entered as control characters 2a1f

2 - if held down, characters typed will be capitalized 2a1g

Keyset 2b

Binary coded device (see keyset card for codes) 2b1

2. ADDRESSING 3

The prompt B: means a "Bug" (command accept on mouse or keyboard) will be accepted as an address. 3a

When reading a document online the following addressing elements will be helpful (they may be used following the Jump command): 3b

Successor - next statement at this level with same source 3b1

Predecessor - next previous statement at this level with same source 3b2

Head - first statement at this same level having the same source 3b3

Tail - last statement at this same level having the same source 3b4

End - last statement in the branch defined by the addressed statement 3b5

Back - statement immediately preceding this one (regardless of level) 3b6

Next - next statement (regardless of level) 3b7

Origin - statement 0 3b8

Return - previous position in file (view) 3b9

File Return - puts you in a previously loaded file 3b10

3, COMMAND ACCEPT 4

Note that in DNLS CA is used to indicate the completion of a field rather than CR. This may be done with the rightmost mouse button or the CA key on the Delta Data. The CR key on the Delta Data is equivalent to CTL V CR in TNLS. 4a

4, VIEWSPECS 5

Viewspec f recreates the screen and is necessary if viewspecs are entered with the mouse. 5a

5, GETTING TO TENEX 6

You may use all normal ways of getting to Tenex: CTL C and Quit are suggested. CTL C gives you a 2-line teletype simulation window at the top of the screen. Quit clears the screen and gives you the entire space for teletype simulation. 6a

6, SPLIT SCREEN 7

Insert Edge - You may divide your display window by bugging the margin where you want the edge to be or by specifying the commandword Center, bug the margin where you want the edge and it will divide the screen in half. The location of your cursor when you type OK determines which side of the edge will contain the information in your old window. The new window will say "Empty". The Jump command puts things in the window containing the cursor. 7a

Delete Edge - bug the edge and it will be deleted 7b

Move Edge - bug the edge and then it's new location and it will be moved 7c

7, STYLE 8

Whereas in TNLS substitute is used for many editing tasks,

specific editing commands (i.e, Replace Character, Delete Character etc.) will be more efficient in DNLS. 8a

Handout given to ARPA Users in DNLS Classes

(J31491) 12-DEC-74 06:14;;;; Title: Author(s): Susan R. Lee/SRL;
Distribution: /SRI-ARC([INFO-ONLY]) MEJ([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: SRL; Origin: < LEE,
DNLSCOURSE,NLS;3, >, 18-NOV-74 08:24 SRL ;;;;####;

SRL 12-DEC-74 06:50 31492

Description of Attendees and Material Covered at Course for NSA at MITRE, Dec. 2-5

For those of you at NSA - this is just for practice reading if you'd like

SRL 12-DEC-74 06:50 31492

Description of Attendees and Material Covered at Course for NSA at MITRE, Dec, 2-5

The following describes briefly who attended and what was covered in the 4-day course at MITRE for NSA people. Tuesday through Thursday the class format was as follows: 1 to 1-1/2 hrs. lecture in conference room followed by practice on terminals in TIP room. (TIP room was small and noisy so material was introduced in the conference room.) 1

Monday, December 2 1a

Transition Course - 9:30 - 12:30 1a1

Attendees: Jesse Hill, Mil Jernigan, Keith McCloghrie, and Jean Iseli (MITRE) 1a1a

Material Covered: Transition Course - an updated version of (24357,) (lee,preview2,nls;2,) 1a1b

Tuesday, December 3 1b

Introductory Course - 9:00 - 12:30 1b1

Attendees: Jesse Hill, Mil Jernigan, Jane Tanavage, Debbie Boeh, Keith McCloghrie, Jack Gillikin, Harold Solow (MITRE), Michael Robertazzi, Roxanne Gearhart, Rita Jordan (SRI - observing) and Terry H. Proch 1b1a

Material Covered: Basic Course - without Sendmail or structure 1b1b

Demo of DNLS at ARPA 1b2

Attendees: Jesse Hill and Keith McCloghrie 1b2a

Wednesday, December 4 1c

Continuation of Introductory Course - 9:00 - 12:30 1c1

Attendees: Mil Jernigan, Debbie Boeh, Jack Gillikin, Harold Solow (MITRE), Michael Robertazzi, Roxanne Gearhart, Jane Tanavage, Troy Cox, and Terry H. Proch 1c1a

Material Covered: Sendmail and structure (branch group), repeating 1c1b

Demo of DNLS at ARPA 1c2

Attendees: Jesse Hill, Jack Gillikin, Terry Proch and Michael Robertazzi 1c2a

Description of Attendees and Material Covered at Course for NSA at MITRE, Dec. 2-5

Thursday, December 5 1d

Continuation - 9:00 - 12:30 1d1

Attendees: Mil Jernigan, Debbie Boeh, Jack Gillikin, Harold Solow (MITRE), Michael Robertazzi, and Terry H. Proch 1d1a

Material Covered: Reading Journal mail (links and statement names), more viewspecs, append and break, plus some discussion of the existence of additional capabilities 1d1b

SRL 12-DEC-74 06:50 31492

Description of Attendees and Material Covered at Course for NSA at MITRE, Dec. 2-5

(J31492) 12-DEC-74 06:50;;;; Title: Author(s): Susan R. Lee/SRL; Distribution: /JHB([INFO-ONLY]) JCN([INFO-ONLY]) JMB([INFO-ONLY]) NSA([INFO-ONLY]) ; Sub-Collections: SRI-ARC NSA; Clerk: SRL; Origin: < LEE, NSATRIP,NLS;4, >, 11-DEC-74 13:42 SRL ;;;;####;

LAC 12-DEC-74 07:41 31493

Needed extensions to BJP

I think we need to extend the Create Batch Job CRTJOB to include a priority field and a field for specifying prerequisite jobs.

LAC 12-DEC-74 07:41 31493

Needed extensions to BJP

Jim and Jon,

May I suggest that the "CRTJOB" procedure of the BJP (Journal,24583,1;W) requires at least two and possibly three additional parameters. 1

PRIORITY- Most batch scheduling systems allow the user to specify a Priority/Class/Queue or some other similiar term. Differences in cost and resources available within the different classes are usually significant. It is reasonable for us to expect that the user will want to take advantage of a lower priced priority if he can tolerate a slower turnaround, of conversely to want to be able to select a higher priced, quick turnaround class. There needs to be a way to specify this priority in the CRTJOB call. I would suggest a third input parameter:

priority - INTEGER 1a

We should also recognize that some systems actually have a multiple priority scheme. The B4700, for example, has a separate specifyable priority for a job's being scheduled, recieving processing slices, and holding control of memory against other jobs when core is needed for a realtime job. However, i think it is probably acceptable to combine these three fields into one three digit integer 1a1

PRE/CO-REQUISITE JOBS- It should also be recognized that one job may have as a prerequisite the successful completion of another (perhaps because it uses that job's output file for input). The most obvious case is the execution of a program which must first be compiled, but many other programs also require serial execution of two or more jobs. A few also require parallel execution. 1b

We must certainly allow the user to generate a string of jobs, each of which will be executed only if the previous one went to normal completion. Thus there is an absolute requirement for a Prerequisite field: 1b1

<preq>- LIST ((%host#%INTEGER, %jobid%INTEGER),,) 1b1a

Initially we should probably administratively require that any jobs linked in this way reside in the same machine, but a multi-machine structure will probably someday become quite desirable, and thus should be allowed for in the call. 1b1b

The need for a co-requisite parameter is not as clear-cut. Giving two (or more) jobs the same prerequisite might suffice in a single machine environment. However, by the time a multi-machine environment is implemented, such a parameter might be necessary. This idea needs more exploration to determine whether it is a real need. 1b2

Needed extensions to BJP

/Larry Crain

Needed extensions to BJP

(J31493) 12-DEC-74 07:41;;;; Title: Author(s): Lawrence A. Crain/LAC; Distribution: /JEW([ACTION]) JBP([ACTION]) WEC([INFO-ONLY]) RMB([INFO-ONLY]) SDC2([INFO-ONLY]) MAW([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: LAC; Origin: < CRAIN, BJPCOMMENTS,NLS;2, >, 12-DEC-74 07:28 LAC ;;;;####;

JCF 11-DEC-74 08:58 31494

test of the dof sendm sendmail to your idents

this is an exampe of a message,,it and statement appear in your mailbox.

1

JCF 11-DEC-74 08:58 31494

test of the dof sendm sendmail to your idents

(J31494) 11-DEC-74 08:58;;;; Title: Author(s): John Cianflone/JCF; Distribution: /RPU([ACTION]) SMI([ACTION]) JDS([ACTION]) HSM([ACTION]) JCG([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: JCF;

JCF 11-DEC-74 09:09 31495

test

11-DEC-74 0639-PDT DSMITH: nothing
Distribution: GILBERT, CIANFLONE, UHLIG, dsmith
Received at: 11-DEC-74 06:39:29 1

polish flaming shishkobob is a flaming arrow shot thru a garbage
can to break an iridmans finger you hit him in the nose 1a

JCF 11-DEC-74 09:09 31495

test

(J31495) 11-DEC-74 09:09;;;; Title: Author(s): John Cianflone/JCF;
Distribution: /RPU([ACTION]) JCG([ACTION]) ; Sub-Collections:
NIC; Clerk: JCF;

JCG 12-DEC-74 13:54 31496

message from london

greetings from london, 1

during the time i'm gone, i hope you will use either send message or send mail to keep me posted on the most important actions that i should be aware of, i'm not interested in all of the activities that you would otherwise put in the weekly activity report, only those that should involve me if i were in the office, 2

As you know I hope to use the rest of the month to see how effectively a capability like this can be used to operate an office at home, 3

best wishes as we approach the holidays, I think we've been involved in some very interesting work in the last year---some that promises to move us to the leading edge of the computer's capability, 4

JCG 12-DEC-74 13:54 31496

message from london

(J31496) 12-DEC-74 13:54;;;; Title: Author(s): John C. Gilbert/JCG;
Distribution: /JCF([ACTION]) RPU([ACTION]) HSM([ACTION])
JAA([ACTION]) JDS([ACTION]) ; Sub-Collections: NIC; Clerk: JCG;
Origin: < GILBERT, MSG-TO-DMIS,NLS;2, >, 11-DEC-74 18:52 JCG
;;;;####;

MIKE 12-DEC-74 14:17 31497

re-transmit of cmi"i and cmi-ii comparison

this went out on nov 27, and appeared as journal item 31402.

re-transmit of cmi"i and cmi-ii comparison

MIKE 12-DEC-74 14:17 31497

re-transmit of cmi"i and cmi-ii comparison

(J31497) 12-DEC-74 14:17;;;; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: MIKE;

SRL 13-DEC-74 05:16 31498

Program Management Outline

This is just for practice!

Program Management Outline

This file contains a detailed description of Program A. For a complete description of all programs see: (lee, program-mgt,). 1

This particular file will be used to demonstrate additional NLS editing commands. 2

Program A (ongoing) 3

SUMMARY: 3a

Here would be the textual Summary information
.....
.....
..... 3a1

OBJECTIVES: 3b

Here would be the textual Objectives information
.....
.....
.....
..... 3b1

BACKGROUND: 3c

Here would be the textual Background information
.....
.....
.....
..... 3c1

PREVIOUS WORK: 3d

Projects/Contractors 3d1

Project 1 Stanford Research Institute - ARC 3d2

Principal Investigator 3d2a

Name and Ident 3d2a1

Douglas C. Engelbart (DCE) 3d2a2

Summary 3d2b

Here would be the textual Summary information see (18368,2:gwyn) for an example (from an ARC proposal) 3d2b1

Program Management Outline

Objective 3d2c

The primary objectives of this project have been wide-ranging and encompass many aspects of aiding "office workers", 3d2c1

Statement of Work 3d2d

Here would be the textual Statement of Work information
.....
.....
.....
..... 3d2d1

Milestones 3d2e

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3d2e1

xxx ...s.....r.....rF 3d2e2

xxx ....s.r.....r.............rF 3d2e3

xxx ....s....r.............r.rF 3d2e4

xxx ....s...r.............r.....rF 3d2e5

xxx ....s.........r.....r.........rF 3d2e6

s=start r=review F=finish 3d2e6a

(or whatever layout seems appropriate) 3d2e6b

Technical reports 3d2f

Links to file(s) of abstracts of reports (or to actual reports if any are in the Journal) 3d2f1

Status reports 3d2g

Links to file(s) of abstracts of reports (or to actual reports if any are in the Journal) 3d2g1

April 1974 GMR: ARC (norton,saveqmr,1:xbbzm) 3d2g2

Project 2 Bolt Beranek and Newman -BBN 3d3

Principal Investigator 3d3a

Name (and IDENT=for more information) 3d3a1

Program Management Outline

Summary 3d3b

Here would be the textual Summary information
.....
.....
.....
..... 3d3b1

Objective 3d3c

Here would be the textual Objective information
.....
.....
.....
..... 3d3c1

Statement of Work 3d3d

Here would be the textual Statement of Work information
.....
.....
.....
..... 3d3d1

Milestones 3d3e

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3d3e1

xxx ...s.....r.....rF 3d3e2

xxx ....s.r.....r.............rF 3d3e3

xxx ....s....r.............r.rF 3d3e4

xxx ....s...r.............r.....rF 3d3e5

xxx ....s.........r.....r.........rF 3d3e6

s=start r=review F=finish 3d3e6a

(or whatever layout seems appropriate) 3d3e6b

Technical reports 3d3f

Links to file(s) of abstracts of reports (or to actual reports if any are in the Journal) 3d3f1

Status reports 3d3g

Links to file(s) of abstracts of reports (or to actual reports if any are in the Journal) 3d3g1

Project 3 Massachusetts Institute of Technology - MIT 3d4

Project 4 University of Southern California - USC 3d5

Project 5 Hudson Institute - Hudson 3d6

Project 6 University of Hawaii - UH 3d7

Principal Investigator 3d7a

Name (and IDENT-for more information) 3d7a1

Summary 3d7b

Here would be the textual Summary information
.....
.....
.....
..... 3d7b1

Objective 3d7c

Here would be the textual Objective information
.....
.....
.....
..... 3d7c1

Statement of Work 3d7d

Here would be the textual Statement of Work information
.....
.....
.....
..... 3d7d1

Milestones 3d7e

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3d7e1

xxx ...s.....r.....rF 3d7e2

xxx ....s.r.....r.............rF 3d7e3

xxx ....s....r.............r.rF 3d7e4

xxx .....s...r.....r.....rF 3d7e5

xxx .....s.....r.....r.....rF 3d7e6

s=start r=review F=finish 3d7e6a

(or whatever layout seems appropriate) 3d7e6b

Technical reports 3d7f

Links to file(s) of abstracts of reports (or to actual reports if any are in the Journal) 3d7f1

Status reports 3d7g

Links to file(s) of abstracts of reports (or to actual reports if any are in the Journal) 3d7g1

PROPOSED WORK: 3e

Projects/Contractors 3e1

Project 7 3e2

Principal Investigator 3e2a

Name (and IDENT=for more information) 3e2a1

Summary 3e2b

Here would be the textual Summary information
.....
.....
.....
..... 3e2b1

Objective 3e2c

Here would be the textual Objective information
.....
.....
.....
..... 3e2c1

Statement of Work 3e2d

Here would be the textual Statement of Work information
.....
.....

....
.... 3e2d1

Milestones 3e2e

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3e2e1

xxx ...s.....r.....rF 3e2e2

xxx ....s.r.....r................rF 3e2e3

xxx ....s....r................r.rF 3e2e4

xxx ....s...r................r.....rF 3e2e5

xxx ....s.........r.....r.........rF 3e2e6

s=start r=review F=finish 3e2e6a

(or whatever layout seems appropriate) 3e2e6b

Project 8 3e3

Principal Investigator 3e3a

Name (and IDENT-for more information) 3e3a1

Summary 3e3b

Here would be the textual Summary information
....
....
....
.... 3e3b1

Objective 3e3c

Here would be the textual Objective information
....
....
....
.... 3e3c1

Statement of Work 3e3d

Here would be the textual Statement of Work information
....
....

....
.... 3e3d1

Milestones 3e3e

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3e3e1

xxx ...s.....r.....rF 3e3e2

xxx ....s.r.....r...............rF 3e3e3

xxx ....s....r...............r.rF 3e3e4

xxx ....s...r...............r.....rF 3e3e5

xxx ....s.........r.....r.........rF 3e3e6

s=start r=review F=finish 3e3e6a

(or whatever layout seems appropriate) 3e3e6b

Project 9 3e4

Principal Investigator 3e4a

Name (and IDENT-for more information) 3e4a1

Summary 3e4b

Here would be the textual Summary information
....
....
....
.... 3e4b1

Objective 3e4c

Here would be the textual Objective information
....
....
....
.... 3e4c1

Statement of Work 3e4d

Here would be the textual Statement of Work information
....
....

....
.... 3e4d1

Milestones 3e4e

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3e4e1

xxx ...s.....r.....rF 3e4e2

xxx ....s.r.....r...............rF 3e4e3

xxx ....s....r...............r.rF 3e4e4

xxx ....s...r................r.....rF 3e4e5

xxx ....s.........r.....r.........rF 3e4e6

s=start r=review F=finish 3e4e6a

(or whatever layout seems appropriate) 3e4e6b

RELEVANCE TO DOD: 3f

Here would be the textual Relevance information ....
....
....
.... 3f1

MILESTONES: 3g

Phases Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 3g1

xxx ...s.....r.....rF 3g2

xxx ....s.r.....r...............rF 3g3

xxx ....s....r...............r.rF 3g4

xxx ....s...r................r.....rF 3g5

xxx ....s.........r.....r.........rF 3g6

s=start r=review F=finish 3g6a

(or whatever layout seems appropriate) 3g6b

Program Management Outline

(J31498) 13-DEC-74 05:16;;;; Title: (Unrecorded) Title: Author(s): Susan R. Lee/SRL; Distribution: /CKM([INFO-ONLY]) SRL([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: SRL; Origin: < LEE, PROGRAMA,NLS;1, >, 18-NOV-74 08:26 SRL ;;;;####;

DAP 13-DEC-74 06:07 31499

User-prog,lowercase

I have used <user-progs,lowercase> primarily to alleviate the ill effects of the use of an all-uppercase terminal (Computer-Devices). It works nicely for this. Now, however, I am producing files which have Output Processor directives in them, and I have the uneasy feeling that if I work oon these files from my handy little portable terminal and then use <lowercase> on them, the directives will all go lowercase (exceppt of course for the first letter of each, which follows a period). Is this true? If it is, can I void the problem in any practical way? or should I just forget about using an all-uppercase terminal for this purpose? (I can survive without, incidentally; I only use the thing occasionally, and then simply because it's easier to carry home than this one). 1

User-prog,lowercase

(J31499) 13-DEC-74 06:07;;;; Title: Author(s): David A. Potter/DAP;
Distribution: /NDM([ACTION]) DAP([INFO-ONLY]) FEEDBACK([
INFO-ONLY]) ; Sub-Collections: NIC FEEDBACK; Clerk: DAP;

Handouts Given to ARPA Users in NLS Classes

These were compiled by CKM and myself. They have Partial prompts and terse herald throughout as is the case at ARPA.

Handouts Given to ARPA Users in NLS Classes

INTRODUCTION TO TNLS 1

Letters you must type for NLS commands are underlined,
<CR> strike the carriage return key
<LF> strike the linefeed key
<> strike the space bar

1a

1b

SESSION I 2

1. TO GET TO NLS 2a

@nls <CR> 2a1

2. TO CREATE A NEW FILE 2b

* C:<> Create C: File T: (filename with no spaces) <CR> 2b1

3. TO INSERT TEXT 2c

* C: Insert C: Statement (to follow) A: <CR> L: <CR> T: <CR> 2c1

4. TO DELETE THE LAST CHARACTER OR WORD WHILE ENTERING TEXT 2d

CTL A - delete character; CTL W - delete word 2d1

5. TO PRINT A FILE AT A TERMINAL 2e

* C: print C: File OK: <CR> 2e1

6. TO STOP PRINTING: CTL O 2f

7. TO SEE STATEMENT NUMBERS 2g

* C: <> Set C: Viewspecs V: m <CR> 2g1

Other viewspecs: n - turns statement numbers off

y - double spaces between statements
z - single spaces between statements 2g2

8, TO DO SIMPLE EDITING 2h

* C: Substitute C: Text (in) C: C: Statement (at) A: <CR> 2h1

* C: Delete C: Statement (at) A: <CR> OK: <CR> 2h2

* C: Move C: Statement (from) A: <CR> (to follow) A: <CR> L: <CR> 2h3

* C: Copy C: Statement (from) A: <CR> (to follow) A: <CR> L: <CR> 2h4

9, TO UPDATE A FILE 2i

* C: Update C: File OK/C: <CR> 2i1

10, TO DELETE A FILE 2j

* C: Delete C: File T: OK: <CR> 2j1

11, TO LIST THE FILES IN YOUR DIRECTORY 2k

* C: <>Show C: Directory (of) OK: <CR> OPT/OK: <CR> 2k1

12, TO GET BACK TO TENEX: CTL C 2l

13, TO LOAD A PREVIOUSLY CREATED FILE 2m

* C: Load C: File T: (filename) <CR> 2m1

14, MORE ABOUT PRINTING 2n

* C: \ prints current statement 2n1

* C: <LF> prints next statement 2n2

* C: Print C: Statement (at) A: <CR> V: <CR> 2n3

* C: Print C: Rest OK: <CR> 2n4

15, TO JUMP TO A PARTICULAR STATEMENT 2o

* C: Jump (to) OK/C: C: Address A: (statement number) <CR> 2o1

16, MORE ABOUT EDITING 2p

* C: Insert C: Text (to follow) A: <CR> T: <CR> 2p1

17, MORE ABOUT ADDRESSING 2q

The following items may be used alone or following a statement number and a space, 2q1

+e end of statement 2q1a

"some text from the statement" new text will be inserted after the las character in quotes 2q1b

18, TO STRUCTURE A FILE 2r

Type u for up a level or d for down a level when prompted for L:, 2r1

19, HELP! 2s

1) Things you can do: 2s1

a) TO ABORT COMMAND: CTL X 2s1a

b) Type ? or use the Help command 2s1b

c) Call or link to Jim Bair or Susan Lee at either OFFICE-1 or SRI-ARC 2s1c

d) Sndmsg to feedback 2s1d

Handouts Given to ARPA Users in NLS Classes

C. Links - (directory,filename,st, #:viewspecs) 3b3

Used to address between files and as online footnotes; valid after any A:. 3b3a

To jump to a link:
* C: Jump (to) C: Address A: <CR>
where the address might be of the form: statement no, <> ,1
3b3b

3. MORE VIEWSPECS 3c

* C: <> Show C: Viewspecs (status) OK: <CR> 3c1

* C: <> Reset C: Viewspecs OK: <CR> 3c2

w - show all lines, all levels
x - show first line, first level 3c3

a - show one level less
b - show one level more 3c4

q - show one line less
r - show one line more 3c5

t - show first lines only (number of levels shown is determined by other viewspecs) 3c6

G - statement numbers/SID's on the right
H - statement numbers/SID's on the left 3c7

I - show SID's
J - show statement numbers 3c8

4. HOW TO STORE AND RETRIEVE A FILE 3d

In TENEX: archive to store and interrogate to retrieve 3d1

Automatic archival occurs after 21 days inactivity 3d2

5. HOW TO SEND AN NLS FILE USING SNDMSG 3e

Convert the NLS file to a sequential (TXT) file. 3e1

Load the file or jump to the beginning of the file if already loaded 3e1a

* C: Output C: Sequential C: File T: (filename) <CR> OK/C: <CR> 3e1b

Type CTL B when asked for the message and respond with the filename including TXT extension 3e1c

SESSION III 4

1. HOW TO USE SENDMAIL TO SEND A FILE 4a

* C: Goto (subsystem) C: Sendmail OK: <CR>
* C: Interrogate OK: <CR>
(distribute for action to:) T: type in a list of idents or <CR> - separate idents by spaces; to find unknown idents type ,username
(distribute for information-only to:) T: type in alist of idents or <CR>

(title:) T: type in a title <CR> 4a1

(type of source:) C: File A: <CR> (CR means the file you have loaded will be sent; type filename, to send a different file - you must follow the filename with a comma)
(show status?) Y/N: y
TITLE: the title you typed above
AUTHOR: the ident of the person logged in
DISTRIBUTE FOR INFO-ONLY TO: the list of idents typed above

FILE: the file you indicated above

(send the mail now?) Y/N: Y
Completed
* C: Quit OK/C: <CR>
* C: 4a2

If you answer No to "Send the mail now?" you may change any listed information with the following commands: 4a3

* C: Title T: type in new title <CR>
* C: Distribute (for) C: Information (Only) (to) T: type in new idents <CR>
* C: Distribute (for) C: Action (to) T: type in new idents <CR>
* C: Authors T: type in new author's ident <CR>
* C: Comment T: type in a few lines of comments <CR>
* C: <>Private OK: <CR>
* C: Unrecorded Y/N: Y
* C: <>Show C: Record (for ident) T/[A]: (if you don't know the ident type ,username to find out) <CR>

Handouts Given to ARPA Users in NLS Classes

* C: <> Show C: Status OK: <CR>
* C: Send (the mail) OK: <CR>

4a4

2. INITIAL FILE (HOW TO READ JOURNAL MAIL) 4b

* C: Print C: Journal OK: <CR> 4b1

3. MORE ABOUT ADDRESSING 4c

A. PLEX 4c1

A plex is a branch plus all other branches at the same level having th same source. 4c1a

B. STATEMENT NAMES 4c2

Enclose in parentheses at the beginning of a statement; may be used as an address like a statement number. 4c2a

For example if you have a branch which has at the beginning: (haveread you can use the command
* C: Print C: Branch (at) A: haveread <CR>
to print the branch without knowing what the statement number is. 4c2b

4. MORE ON EDITING 4d

A. TO COMBINE TWO STATEMENTS 4d1

* C: Append C: Statement (at) A: <CR> (to) A: <CR> (join with) T/: (th text you type in here goes between the two statements - you may want one or two spaces between them) <CR> 4d1a

B. TO BREAK ONE STATEMENT INTO TWO (must be done at the end of a word) 4d2

* C: Break C: Statement (at) A: <CR> L: <CR> 4d2a

C. TO EXCHANGE TWO STATEMENTS 4d3

* C: Transpose C: Statement (at) A: <CR> (and) A: <CR> 4d3a

5. CHECKING AND CORRECTING FILE STATUS 4e

* C: <>Show C: File C: Status OK: <CR> 4e1

gives general information 4e1a

* C: Verify C: File OK: <CR> 4e2

checks for a bad file 4e2a

* C: Update C: File OK/C: Compact OK: <CR> 4e3

consolidates space used, updates, renaming possible 4e3a

* C: Delete C: Modifications (to file) OK: <CR> (really?) OK: <CR> 4e4

deletes all changes since the last update 4e4a

6. HOW TO DO SPECIAL FILE FORMATTING 4f

Output processor Directives 4f1

* C: Output C: Terminal OK: <CR> (Send Form Feeds?) Y/N: Y (Wait at page break?) Y/N: (Go?) Y/N: 4f2

7. HOW TO SEARCH FOR A PARTICULAR WORD OR PHRASE (CONTENT) 4g

* C: Jump (to) OK/C: C: Content C: First RPT: the text you want to find <CR> V: <CR> 4g1

To search for the next occurrence of CONTENT, use the command:
* C: Jump (to) OK/C: C: Content C: Next RPT: CTL B V: <CR> 4g2

SESSION IV - Other Capabilities in NLS 5

Calculator 5a

You can enter the Calculator subsystem by using the command:
* C: Goto C: Calculator OK: <CR> 5a1

The Calculator subsystem lets you do arithmetic in a way integrated with the rest of NLS. For example, if you have a column of numbers in a file, you can add the column using the Add command terminated by CTL B to repeat. If you just want to type in some numbers and see the total use the Evaluate command. The Format command specifies how the result will appear. You may keep several running totals in up to ten accumulators. The result of any calculation may be inserted into an NLS file. For a complete list of Calculator commands use the Goto Calculator command and type a questionmark or refer to the NLS Command Summary. 5a2

User Programs 5b

You can enter the Programs subsystem by using the command:
* C: Goto C: Programs OK: <CR> 5b1

There are two programs for general use, message and jform3. Message is used to move or copy the messages in your message.txt file to an nls file as nls statements. Jform3 is used to format messages to look like Sendmail citations. 5b2

Once in the Programs subsystem use the command
* C: Load C: Program T/[A]: message <CR>
then,
* C: Goto C: Message <CR> 5b3

Once in the message subsystem type a questionmark for a list of available commands. Use a similar procedure for the jform3 program. 5b4

Useroptions 5c

This subsystem allows you to change such things as recognition mode, herald, prompts, default viewspecs, default name delimiters and much mo
Use the command
*: C: Goto C: Useroptions <CR>

then type a questionmark for a complete list of commands in this subsystem. 5c1

Locator 5d

Locator is a file containing links to all online documentation, journal indices and much more. To see what locator points to jump to or type in the following link:

(userguides,locator,;xbm)

and print the file. 5d1

Content Analyzer 5e

The Content Analyzer allows a user to have more sophisticated control ove what part of a file is printed. For example, only those statements containing a particular word or phrase may be printed. Also, statements added between any two dates may be viewed. For a complete description se the current copy of the L10 Users' Guide. 5e1

Handouts Given to ARPA Users in NLS Classes

(J31500) 13-DEC-74 08:57;;;; Title: Author(s): Susan R. Lee/SRL;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: SRL; Origin: < LEE, ARPANEWTODO,NLS;15, >, 13-DEC-74
08:53 SRL ;;;;####;

Summary of Commands Taught in Courses at ARPA

This handout went to people who made it through all three TNLS courses.

Summary of Commands Taught in Courses at ARPA

INTRODUCTION TO TNLS 1

Letters you must type for NLS commands are underlined.
<CR> strike the carriage return key
<LF> strike the linefeed key
<> strike the space bar
1a

TABLE OF CONTENTS 2

Summary of Commands Taught in Courses at ARPA

SUMMARY OF COMMANDS IN SESSIONS I - III 3

1. TO GET TO NLS 3a

@nls <CR> 3a1

2. TO CREATE A NEW FILE 3b

* C:<> Create C: File T: (filename with no spaces) <CR> 3b1

3. TO INSERT TEXT 3c

* C: Insert C: Statement (to follow) A: <CR> L: <CR> T: <CR> 3c1

4. TO DELETE THE LAST CHARACTER OR WORD WHILE ENTERING TEXT 3d

CTL A - delete character; CTL W - delete word 3d1

5. TO PRINT 3e

* C: print C: File OK: <CR> 3e1

* C: \ prints current statement 3e2

* C: <LF> prints next statement 3e3

* C: Print C: Statement (at) A: <CR> V: <CR> 3e4

* C: Print C: Rest OK: <CR> 3e5

6. TO STOP PRINTING: CTL O 3f

7. VIEWSPECS 3g

* C: <> Set C: Viewspecs V: <CR> 3g1

* C: <> Show C: Viewspecs (status) OK: <CR> 3g2

* C: <> Reset C: Viewspecs OK: <CR> 3g3

m - show statement numbers
n - don't show statement numbers/SID's 3g4

y - double spaces between statements
z - single spaces between statements 3g5

w - show all lines, all levels
x - show first line, first level 3g6

a - show one level less
b - show one level more 3g7

q - show one line less
r - show one line more 3g8

t - show first lines only (number of levels shown is determined by other viewspecs) 3g9

G - statement numbers/SID's on the right
H - statement numbers/SID's on the left 3g10

I - show SID's
J - show statement numbers 3g11

8. EDITING 3h

* C: Substitute C: Text (in) C: C: Statement (at) A: <CR> 3h1

* C: Delete C: Statement (at) A: <CR> OK: <CR> 3h2

* C: Move C: Statement (from) A: <CR> (to follow) A: <CR> L: <CR> 3h3

* C: Copy C: Statement (from) A: <CR> (to follow) A: <CR> L: <CR> 3h4

* C: Insert C: Text (to follow) A: <CR> T: <CR> 3h5

* C: Replace C: Statement (at) A: <CR> (by) T: <CR> 3h6

* C: Append C: Statement (at) A: <CR> (to) A: <CR> (join with) T: (the text you type in here goes between the two statements - you may want one or two spaces between them) <CR> 3h7

* C: Break C: Statement (at) A: <CR> L: <CR> 3h8

* C: Transpose C: Statement (at) A: <CR> (and) A: <CR> 3h9

Any verbs (insert, replace etc,) may be followed by: 3h10

any noUn (word, character, branch, group) 3h10a

9. ADDRESSING 3i

A. To address WITHIN a statement 3i1

The following items may be used alone or following a statement number and a space. 3i1a

+e end of statement 3i1a1

"some text from the statement" new text will be inserted after the last character in quotes 3i1a2

B. To Address Large Blocks of Information 3i2

Branch - a statement plus all of its substructure 3i2a

Group - a set of branches all having the same source 3i2b

Plex = a branch plus all other branches at the same level having the same source. 3i2c

C. How to know where the Control Marker (CM = the pointer in a file) is 3i3

/ prints context of CM = valid at conclusion of address or at comman level 3i3a

D. How to insert text at the beginning of a statement 3i4

Replace the first character with the new text plus the character. 3i4a

E. Links = (directory,filename,st, #:viewspecs) 3i5

Used to address between files and as online footnotes; valid after any A:. 3i5a

To jump to a link:
* C: Jump (to) C: Address A: <CR>
where the address might be of the form: statement no, <> ,1 3i5b

F. Statement Names 3i6

Enclose in parentheses at the beginning of a statement; may be used as an address like a statement number. 3i6a

For example if you have a branch which has at the beginning: (haveread you can use the command
* C: Print C: Branch (at) A: haveread <CR>
to print the branch without knowing what the statement number is. 3i6b

10. TO UPDATE A FILE 3j

* C: Update C: File OK/C: <CR> 3j1

11, TO DELETE A FILE 3k

* C: Delete C: File T: OK: <CR> 3k1

12, TO LIST THE FILES IN YOUR DIRECTORY 3l

* C: <>ShoW C: Directory (of) OK: <CR> OPT/OK: <CR> 3l1

13, TO GET BACK TO TENEX: CTL C 3m

14, TO LOAD A PREVIOUSLY CREATED FILE 3n

* C: Load C: File T: (filename) <CR> 3n1

15, TO JUMP TO A PARTICULAR STATEMENT 3o

* C: Jump (to) OK/C: C: Address A: (statement number) <CR> 3o1

16, TO STRUCTURE A FILE 3p

Type u for up a level or d for down a level when prompted for L:, 3p1

17, TO EXECUTE A COMMAND REPETITIOUSLY WITHOUT RETYPING ENTIRE COMMAND: 3q

Type a CTL B instead of the final CR,
you will be prompted for the level, address or text as if you had retyped
the initial command words, Type a CTL X when a new command is desired,
3q1

18, HOW TO STORE AND RETRIEVE A FILE 3r

In TENEX: archive to store and interrogate to retrieve 3r1

Automatic archival occurs after 21 days inactivity 3r2

19, HOW TO SEND AN NLS FILE USING SNDMSG 3s

Convert the NLS file to a sequential (TXT) file. 3s1

Load the file or jump to the beginning of the file if already loaded 3s1a

* C: Output C: Sequential C: File T: (filename) <CR> OK/C: <CR> 3s1b

Type CTL B when asked for the message and respond with the filename including TXT extension 3s1c

20. HOW TO USE SENDMAIL TO SEND A FILE 3t

* C: Goto (subsystem) C: Sendmail OK: <CR>
* C: Interrogate OK: <CR>
(distribute for action to:) T: type in a list of idents or <CR> - separate idents by spaces; to find unknown idents type ,username
(distribute for information-only to:) T: type in alist of idents or <CR>

(title:) T: type in a title <CR> 3t1

(type of source:) C: File A: <CR> (CR means the file you have loaded will be sent; type filename, to send a different file - you must follow the filename with a comma)
(show status?) Y/N: y
TITLE: the title you typed above
AUTHOR: the ident of the person logged in
DISTRIBUTE FOR INFO-ONLY TO: the list of idents typed above

FILE: the file you indicated above

(send the mail now?) Y/N: Y
Completed
* C: Quit OK/C: <CR>
* C: 3t2

If you answer No to "Send the mail now?" you may change any listed information with the following commands: 3t3

* C: Title T: type in new title <CR>
* C: Distribute (for) C: Information (Only) (to) T: type in new idents <CR>
* C: Distribute (for) C: Action (to) T: type in new idents <CR>
* C: Authors T: type in new author's ident <CR>
* C: Comment T: type in a few lines of comments <CR>
* C: <>Private OK: <CR>
* C: Unrecorded Y/N: Y
* C: <>Show C: Record (for ident) T/[A]: (if you don't know the ident typ ,username to find out) <CR>

* C: <> Show C: Status OK: <CR>
* C: Send (the mail) OK: <CR> 3t4

21. INITIAL FILE (HOW TO READ JOURNAL MAIL) 3u

* C: Print C: Journal OK: <CR> 3u1

22. CHECKING AND CORRECTING FILE STATUS 3v

* C: <>Show C: File C: Status OK: <CR> 3v1

gives general information 3v1a

* C: Verify C: File OK: <CR> 3v2

checks for a bad file 3v2a

* C: Update C: File OK/C: Compact OK: <CR> 3v3

consolidates space used, updates, renaming possible 3v3a

OTHER SUBSYSTEMS AND CAPABILITIES 4

Calculator 4a

You can enter the Calculator subsystem by using the command:
* C: Goto C: Calculator OK: <CR> 4a1

The Calculator subsystem lets you do arithmetic in a way integrated with the rest of NLS. For example, if you have a column of numbers in a file, you can add the column using the Add command terminated by CTL B to repeat. If you just want to type in some numbers and see the total use the Evaluate command. The Format command specifies how the result will appear. You may keep several running totals in up to ten accumulators. The result of any calculation may be inserted into an NLS file. For a complete list of Calculator commands use the Goto Calculator command and type a questionmark or refer to the NLS Command Summary. 4a2

User Programs 4b

You can enter the Programs subsystem by using the command:
* C: Goto C: Programs OK: <CR> 4b1

There are two programs for general use, message and jform3. Message is used to move or copy the messages in your message.txt file to an nls file as nls statements. Jform3 is used to format messages to look like Sendmail citations. 4b2

Once in the Programs subsystem use the command
* C: Load C: Program T/[A]: message <CR>
then,
* C: Goto C: Message <CR> 4b3

Once in the message subsystem type a questionmark for a list of available commands. Use a similar procedure for the jform3 program. 4b4

Useroptions 4c

This subsystem allows you to change such things as recognition mode, herald, prompts, default viewspecs, default name delimiters and much more Use the command

*: C: Goto C: Useroptions <CR>

then type a questionmark for a complete list of commands in this subsystem. 4c1

Locator 4d

Locator is a file containing links to all online documentation, journal indices and much more. To see what locator points to jump to or type in the following link:

(userguides,locator,:xbm)

and print the file. 4d1

Content Analyzer 4e

The Content Analyzer allows a user to have more sophisticated control ove what part of a file is printed. For example, only those statements containing a particular word or phrase may be printed. Also, statements added between any two dates may be viewed. For a complete description se the current copy of the LIO Users' Guide. 4e1

Summary of Commands Taught in Courses at ARPA

(J31501) 13-DEC-74 11:56;;;; Title: Author(s): Susan R. Lee/SRL;
Distribution: /SRI-ARC([INFO-ONLY]) CKM([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: SRL; Origin: < LEE,
ARPASUMMARY.NLS;5, >, 13-DEC-74 06:50 SRL ;;;;####;

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

INTRODUCTION TO TNLS 1

Letters you must type for NLS commands are underlined,
<CR> strike the carriage return key
<LF> strike the linefeed key
<> strike the space bar

1a

1b

SESSION I 2

1, TO GET TO NLS 2a

@nls <CR> 2a1

2, TO CREATE A NEW FILE 2b

BASE C:<> Create C: File T/[A]: (filename with no spaces) <CR> 2b1

3, TO INSERT TEXT 2c

BASE C: Insert C: Statement (to follow) A: <CR> L: <CR> T/[A]: <CR> 2c1

4, TO DELETE THE LAST CHARACTER OR WORD WHILE ENTERING TEXT 2d

CTL A = delete character; CTL W = delete word 2d1

5, TO PRINT A FILE AT A TERMINAL 2e

BASE C: Print C: File OK: <CR> 2e1

6, TO STOP PRINTING: CTL O 2f

7, TO SEE STATEMENT NUMBERS 2g

BASE C: <> Set C: Viewspecs V: m <CR> 2g1

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

Other viewspecs: n - turns statement numbers off
y - double spaces between statements
z - single spaces between statements

8, TO DO SIMPLE EDIIING 2h

BASE C: Substitute C: Text (in) OPT/C: C: Statement (at) A: <CR> 2h1

BASE C: Delete C: Statement (at) A: <CR> OK: <CR> 2h2

BASE C: Move C: Statement (from) A/[T]: <CR> (to follow) A: <CR> L: <CR> 2h3

BASE C: Copy C: Statement (from) A/[T]: <CR> (to follow) A: <CR> L: <CR> 2h4

9, TO UPDATE A FILE 2i

BASE C: Update C: File OK/C: <CR> 2i1

10, TO DELETE A FILE 2j

BASE C: Delete C: File T/[A]: OK: <CR> 2j1

11, TO LIST THE FILES IN YOUR DIRECTORY 2k

BASE C: <>Show C: Directory (of) OK: <CR> OPT/OK: <CR> 2k1

12, TO GET BACK TO TENEX: CTL C 2l

13, TO LOAD A PREVIOUSLY CREATED FILE 2m

BASE C: Load C: File T/[A]: (filename) <CR> 2m1

14, MORE ABOUT PRINTING 2n

BASE C: \ prints current statement 2n1

BASE C: <LF> prints next statement 2n2

BASE C: Print C: Statement (at) A: <CR> V: <CR> 2n3

BASE C: Print C: Rest OK: <CR> 2n4

15, TO JUMP TO A PARTICULAR STATEMENT 2o

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

BASE C: Jump (to) C: Address A: (statement number) <CR> 2oi

16. MORE ABOUT EDITING 2p

BASE C: Insert C: Text (to follow) A: <CR> I: <CR> 2pi

17. MORE ABOUT ADDRESSING 2q

The following items may be used alone or following a statement number and a space, 2qi

+e end of statement 2qia

"some text from the statement" new text will be inserted after the las character in quotes 2qib

18. TO STRUCTURE A FILE 2r

Type u for up a level or d for down a level when prompted for L:, 2ri

19. HELP! 2s

1) Things you can do: 2si

a) TO ABORT COMMAND: CTL X 2sia

b) Type ? or use the Help command 2sib

c) Call or link to Jim Bair or Susan Lee at either OFFICE-1 or SRI-ARC 2sic

d) Sndmsg to feedback 2sid

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

SESSION II 3

1. MORE ON EDITING 3a

A. TO ADDRESS LARGE BLOCKS OF INFORMATION 3a1

Branch = a statement plus all of its substructure 3a1a

Group = a set of branches all having the same source 3a1b

B. TO EXECUTE A COMMAND REPETITIOUSLY WITHOUT RETYPING ENTIRE COMMAND: 3a2

Type a CTL B instead of the final CR.
You will be prompted for the level, address or text as if you had retyped the initial command words. Type a CTL X when a new command is desired. 3a2a

C. ADDITIONAL EDITING COMMANDS 3a3

To delete one statement and insert another in its place: 3a3a

BASE C: Replace C: Statement (at) A: <CR> (by) T/[A]: <CR> 3a3a1

Any verbs (insert, replace etc,) may be followed by: 3a3b

word, character, branch, or group 3a3b1

2. MORE ON ADDRESSING 3b

A. How to know where the Control Marker (CM = the pointer in a file) is 3b1

/ prints context of CM = valid at conclusion of address or at comman level 3b1a

B. How to insert text at the beginning of a statement 3b2

Replace the first character with the new text plus the character. 3b2a

C. Links = (directory,filename,st, #:viewspecs) 3b3

Used to address between files and as online footnotes; valid after any A:. 3b3a

To jump to a link:
BASE C: Jump (to) C: Link T/[A]: <CR>
where the address might be of the form: statement no, <> ,1 3b3b

3. MORE VIEWSPECS 3c

BASE C: <> Show C: Viewspecs (status) OK/[**]: <CR> 3c1

BASE C: <> Reset C: Viewspecs OK: <CR> 3c2

w = show all lines, all levels
x = show first line, first level 3c3

a = show one level less
b = show one level more 3c4

q = show one line less
r = show one line more 3c5

t = show first lines only (number of levels shown is determined by other viewspecs) 3c6

G = statement numbers/SID's on the right
H = statement numbers/SID's on the left 3c7

I = show SID's
J = show statement numbers 3c8

4. HOW TO STORE AND RETRIEVE A FILE 3d

In TENEX: archive to store and interrogate to retrieve 3d1

Automatic archival occurs after 21 days inactivity 3d2

5. HOW TO SEND AN NLS FILE USING SNDMSG 3e

Convert the NLS file to a sequential (TXT) file. 3e1

Load the file or jump to the beginning of the file if already loaded 3e1a

BASE C: Output C: Sequential C: File T/[A]: (filename) <CR> OK/C: <CR 3e1b

Type CTL B when asked for the message and respond with the filename including TXT extension 3e1c

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

SESSION III 4

1. HOW TO USE SENDMAIL TO SEND A FILE 4a

```
BASE C: Goto (subsystem) C: Sendmail OK: <CR>
SEND C: Interrogate OK: <CR>
(distribute for action to:) T/[A]: type in a list of idents or <CR> -
separate idents by spaces; to find unknown idents type ,username
(distribute for information-only to:) T/[A]: type in a list of idents or
<CR>

(title:) T/[A]: type in a title <CR>                                    4a1

(type of source:) C: File A: <CR> (CR means the file you have loaded will
be sent; type filename, to send a different file - you must follow the
filename with a comma)
(show status?) Y/N: y
TITLE: the title you typed above
AUTHOR: the ident of the person logged in
DISTRIBUTE FOR INFO-ONLY TO: the list of idents typed above

FILE: the file you indicated above

(send the mail now?) Y/N: Y
Completed
SEND C: Quit OK/C: <CR>
BASE C:                                                                 4a2

If you answer No to "Send the mail now?" you may change any listed
information with the following commands:                                4a3

SEND C: Title T/[A]: type in new title <CR>
SEND C: Distribute (for) C: Information (Only) (to) T/[A]: type in new
idents <CR>
SEND C: Distribute (for) C: Action (to) T/[A]: type in new idents <CR>
SEND C: Authors T/[A]: type in new author's ident <CR>
SEND C: Comment T/[A]: type in a few lines of comments <CR>
SEND C: <>Private OK: <CR>
SEND C: Unrecorded Y/N: Y
SEND C: <>Show C: Record (for ident) T/[A]: (if you don't know the ident
```

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

```
type ,username to find out) <CR>
SEND C: <> Show C: Status OK: <CR>
SEND C: Send (the mail) OK: <CR>                                4a4
```

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

2. INITIAL FILE (HOW TO READ JOURNAL MAIL) 4b

BASE C: Print C: Journal OK: <CR> 4b1

3. MORE ABOUT ADDRESSING 4c

A. PLEX 4c1

A plex is a branch plus all other branches at the same level having th same source. 4c1a

B. STATEMENT NAMES 4c2

Enclose in parentheses at the beginning of a statement; may be used as an address like a statement number. 4c2a

For example if you have a branch which has at the beginning: (haveread you can use the command
BASE C: Print C: Branch (at) A: haveread <CR>
to print the branch without knowing what the statement number is. 4c2b

4. MORE ON EDITING 4d

A. TO COMBINE TWO STATEMENTS 4d1

BASE C: Append C: Statement (at) A/[T]: <CR> (to) A: <CR> (join with) T/[A]: (the text you type in here goes between the two statements - yo may want one or two spaces between them) <CR> 4d1a

B. TO BREAK ONE STATEMENT INTO TWO (must be done at the end of a word) 4d2

BASE C: Break C: Statement (at) A: <CR> 4d2a

C. TO EXCHANGE TWO STATEMENTS 4d3

BASE C: Transpose C: Statement (at) A: <CR> (and) A: <CR> 4d3a

5. CHECKING AND CORRECTING FILE STATUS 4e

BASE C: <>Show C: File C: Status OK: <CR> 4e1

gives general information 4e1a

BASE C: Verify C: File OK: <CR> 4e2

checks for a bad file 4e2a

BASE C: Update C: File OK/C: Compact OK: <CR> 4e3

consolidates space used, updates, renaming possible 4e3a

BASE C: Delete C: Modifications (to file) OK: <CR> (really?) OK: <CR> 4e4

deletes all changes since the last update 4e4a

6, HOW TO DO SPECIAL FILE FORMATTING 4f

Output processor Directives 4f1

BASE C: OutPut C: Terminal OK: <CR> (Send Form Feeds?) Y/N: Y (Wait a page break?) Y/N: (Go?) Y/N: 4f2

7, HOW TO SEARCH FOR A PARTICULAR WORD OR PHRASE (CONTENT) 4g

BASE C: Jump (to) OK/C: C: Content C: First RPT: type in the word or phrase you want to find <CR> L: <CR> 4g1

To search for the next occurrence of the word or phrase, use the command:
BASE C: Jump (to) OK/C: C: Content C: Next RPT: CTL B V: <CR> 4g2

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

SESSION IV - Other Capabilities in NLS 5

Calculator 5a

You can enter the Calculator subsystem by using the command:
BASE C: Goto C: Calculator OK: <CR> 5a1

The Calculator subsystem lets you do arithmetic in a way integrated with the rest of NLS. For example, if you have a column of numbers in a file, you can add the column using the Add command terminated by CTL B to repeat. If you just want to type in some numbers and see the total use the Evaluate command. The Format command specifies how the result will appear. You may keep several running totals in up to ten accumulators. The result of any calculation may be inserted into an NLS file. For a complete list of Calculator commands use the Goto Calculator command and type a questionmark or refer to the NLS Command Summary. 5a2

User Programs 5b

You can enter the Programs subsystem by using the command:
BASE C: Goto C: Programs OK: <CR> 5b1

There are two programs for general use, message and jform3. Message is used to move or copy the messages in your message.txt file to an nls file as nls statements. Jform3 is used to format messages to look like Sendmail citations. 5b2

Once in the Programs subsystem use the command
PROG C: Load C: Program I/[A]: message <CR>
then,
PROG C: Goto C: Message <CR> 5b3

Once in the message subsystem type a questionmark for a list of available commands. Use a similar procedure for the jform3 program. 5b4

Useroptions 5c

This subsystem allows you to change such things as recognition mode, herald, prompts, default viewspecs, default name delimiters and much more. Use the command

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

BASE: C: Goto C: Useroptions <CR>
then type a questionmark for a complete list of commands in this subsystem.

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

Locator 5d

Locator is a file containing links to all online documentation, journal indices and much more. To see what locator points to jump to or type in the following link:

(userguides,locator,;xbm)

and print the file. 5d1

Content Analyzer 5e

The Content Analyzer allows a user to have more sophisticated control ove what part of a file is printed. For example, only those statements containing a particular word or phrase may be printed. Also, statements added between any two dates may be viewed. For a complete description se the current copy of the L10 Users' Guide. 5e1

SRL 13-DEC-74 12:01 31502

Copy of Handouts Given to ARPA Users (31500,) with Full Prompts and Verbose Herald

(J31502) 13-DEC-74 12:01;;;; Title: Author(s): Susan R. Lee/SRL;
Distribution: /SRI-ARC([INFO-ONLY]) MEJ([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: SRL; Origin: < LEE,
NEWTODO,NLS;21, >, 13-DEC-74 08:52 SRL ;;;;####;

SDP 13-DEC-74 15:58 31503

need for punched card output

Does there exist any means at present for obtaining a dump of an NLS file into punched cards(ASCII,etc.)? If so I'd like to know of it. If not, I think some consideration should be given to implementing some such scheme. Is there an ongoing effort in this direction? How do I get a deck? 1

need for punched card output

(J31503) 13-DEC-74 15:58;;;; Title: Author(s): Steve D. Port/SDP;
Distribution: /FEEDBACK([ACTION]) SDP([INFO-ONLY]) CAG2([
INFO-ONLY]) BJR([INFO-ONLY]) ; Sub-Collections: NIC FEEDBACK;
Clerk: SDP;

JNH 16-DEC-74 09:42 31504

NSW

Jim Poppa and friend of John Guy's office (C41) are trying to get info on NSW & DATACOMPUTER. Sounds like there might be enough interest from that group to have someone from ARPA brief them.

Noga will be treating at Housners tomorrow... he got his 12!! 1

JNH 16-DEC-74 09:42 31504

NSW

(J31504) 16-DEC-74 09:42;;;; Title: Author(s): Jesse N. Hill/JNH;
Distribution: /STW([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: JNH;

operating instructions

the following instructions are for operating the execuport 300. 1

after plugging in execuport, turn power on. 2

dial into given number for your area. 3

place receiver into proper cradle on the execuport. 4

typein a ctrl e (return). 5

if you recve this message (hello 322#: 41), typein d c e line feed; login 43 line feed. 6

at this level you should be into tenex. if so you will receive a message telling you so. 7

at this point you must decide what you would like to do . 8

operating instructions

(J31508) 17-DEC-74 10:53;;;; Title: Author(s): John Cianflone/JCF; Distribution: /JCF([ACTION]) ; Sub-Collections: NIC; Clerk: JCF; Origin: < CIANFLONE, INSTRUCTION-1,NLS;1, >, 16-DEC-74 04:41 JCF
;;;;####;

operating instructions

operating instructions

(J31509) 17-DEC-74 11:15;;;; Title: Author(s): John Cianflone/JCF;
Distribution: /JCF([ACTION]) ; Sub-Collections: NIC; Clerk: JCF;
Origin: <CIANFLONE>ALMA.NLS;2, 12-DEC-74 11:23 JCF ;;;;####;

'SUPER-FORTRAN Cross Compiler'

MEMORANDUM FOR: DIRECTOR OF MANAGEMENT INFORMATION SYSTEMS 1

SUBJECT: "SUPER FORTRAN" Compiler in the AMC Scientific and Engineering Computer Network 2

1. On 20 November 1974, a meeting was held at Massachusetts Computer Associates (COMPASS), Wakefield, Massachusetts, to discuss the possibility of adapting the "Super Fortran" compiler they have developed to be a cross compiler within the AMC SENET. Mr Steve Warshall, President of COMPASS, and Bob Milstein, in charge of research for COMPASS, represented Massachusetts Computer Associates. AMC attendees included Mr. David Grobstein, Director of MIS, Picatinny Arsenal; Dr. Stan Taylor, Ballistics Research Lab; Bob Larkin, Communications-ADP Lab, ECOM; Tom Dames, Chairman, SECC; Nate Sternberg, of my staff, and myself. The meeting was held at the request of AMC Headquarters as a result of a briefing to you by Bill Carlson, USAF Data Services Center, and Manager of the National Software Works Project for ARPA. Bill did not attend this meeting. 3

2. For some time, we have recognized that the problems of transferring FORTRAN programs among the various computers in the AMC SENET is a severe limitation. At your direction, we have been searching for means of "cross compiling" programs so that a program written for any one of our machines in SENET might be run on any other machine. As a result of the NSW briefing, presented by Bill Carlson, we modified our thinking somewhat to study the possibility of maintaining one central compiler somewhere in AMC SENET which could be used by any scientist or engineer for writing and compiling his FORTRAN programs and then running them on any of the computers in the S&E netwrok. We originally envisioned a "Super Fortran" compiler which could generate object code for Univac 1108 and 1106, CDC 6500 and 6600, IBM 360, and Burroughs 5500 computers. At this meeting, we modified our thinking to address the alternative of translating FROM FORTRAN written for any one of these machines TO FORTRAN written for any of the other machines. In this way we could continue to use the FORTRAN compilers as they are maintained by the vendors of the various main frames we have in the AMC SENET. We stated the problem to COMPASS as one of allowing transferability of FORTRAN programs FROM any one of the above set of computers TO any of the above set of computers. 4

3. In approaching the problem, the COMPASS representatives first described what they have already done. They have developed the IVTRAN compiler for programs to be run on the ILLIAC IV computer at NASA-AMES. The compiler runs on a PDP 10 at NASA-AMES. A target code generator currently exists only for generating object code for the ILLIAC IV computer. IVTRAN will currently accept CDC 6000 series FORTRAN as input (more or less). They also have a version which will accept strict IBM 360 or 370 FORTRAN. COMPASS has proposed to Los

Alamos Scientific Laboratories to write a new code select program (i.e., a target code generator) for a CDC 7600. Los Alamos has not yet responded to this proposal.

4. Table 1 gives a rough description of the various modules in IVTRAN and their interrelationships. IVTRAN code is input to the Parsing module which does the basic analysis of the code. For ILLIAC IV routines, one output from the Parsing Module can go to a module which does analysis for parallel structures to take advantage of the ILLIAC IV architecture. This module is called the "Paralyzer". Output from the Parsing Module and from the Paralyzer is an intermediate level language. This intermediate level language goes into a module which mixes output from the Parsing module and the Paralyzer and optimizes the code. The optimized output code is still in an intermediate level language. From here the code ends up in a Code Assembly module which produces relocatable object code for the ILLIAC IV computer. Some additional optimization of the target code is done in the code assembly module.

**********TABLE 1**********

modules used in IVTRAN IN THE ORDER IN WHICH THEY ARE INVOKED
IVTRAN code is input
module 1 - parsing module - output goes to modules 2 and 3. Output is intermediate level language.
module 2 - paralyzer - receives intermediate language output from parsing module. Output from Paralyzer goes to module 3.
module 3 - mix & optimize module - receives output from modules 1 and 2 (module 2 is only used for code to run on ILLIAC) - Output is intermediate level language.
module 4 - code assembly module - takes intermediate level language output from mix and optimize module and produces relocatable object code.

****

5. Steve Warshall commented that although the current system only accepts code written for IBM 360 and 370 computers, and would accept most code written for CDC 6000 series computers, it would be relatively easy to write additional programs to accept code written for UNIVAC 1100 series computers. He also stated that it would be relatively easy to break the system immediately following the mix and optimize module and deliver the intermediate level language to a module which would produce FORTRAN code for any of the computers we currently have in the AMC SENET. The code thus produced would be somewhat optimized and could be compiled using the FORTRAN compilers available on any of the computers in the SENET. Obviously, we would not use the "Paralyzer" module. It would also be possible to write

code assembly modules for our 360s, 1100s, and 6000s to generate optimized relocatable target code for each of those machines. 10

6. A number of issues were identified as relevant to determining how far one wants to go. The key issue according to Steve Warshall is how important we consider optimization. He stated that for IBM 360 FORTRAN, IVTRAN has achieved as much as a 15% improvement in run time and a 35% reduction in space (memory) required over FORTRAN programs compiled using Option 2 of the IBM 360 FORTRAN H compiler for SOME programs. On the other hand, Warshall cautioned that they got NO improvement on other programs. Mr. Grobstein commented that for Picatinny Arsenal optimization was unimportant in 75% of the runs but very important in the other 25% because that remaining 25% of the runs accounted for approximately 80% of the run time on the CDC 6000 computers at Picatinny Arsenal. 11

7. Whether or not one chose to go to relocatable target code or stopped with programs cross compiled to FORTRAN for any target machine in SENET, several technical problems would need to be resolved. These problems include such items as the handling of FORTRAN code designed for character string manipulation and the use of the index in a "DO" loop upon exiting from the loop. Although FORTRAN wasn't designed to do character manipulation, many programmers do it anyway. Similarly, many programs assume the value of the index in a DO loop to be the last value. But this is not a FORTRAN standard and is not true for all machines. Many of these problems could be handled automatically with table look-ups if the "cross-compiler" knows both the machine for which the FORTRAN program was written originally and the target machine for which FORTRAN code is to be generated. Other problems depend on the programmers intent. Nonstandard FORTRAN could only be flagged for the programmers attention while cross compiling. He would have to "fix the problem" before compilation on the target machine and execution. The problem may be concisely stated as follows: There are semantic differences among FORTRAN compilers as implemented on various major computers." 12

8. This issue has a major bearing on the feasibility of developing a FORTRAN cross compiler for SENET because we need not only transportability but also "saleability" to the scientists and engineers who would use it. The amount and nature of user action required in transferring from one machine to another would need to be carefully defined to insure that users would not "give up" rather than learn how to use the cross compiler. 13

9. Returning to the problem of development of a cross compiler, to allow transferability of FORTRAN programs among all the computers in SENET, a number of alternatives were identified. It was assumed that input would consist of a FORTRAN program written for any computer in SENET plus the identity of the target machine. Three alternatives

related to the degree of sophistication of the cross compiler were discussed: 14

a. Alternative 1, UNOPTIMIZED FORTRAN. In this alternative, the result of putting any program into the cross compiler would be an unoptimized FORTRAN program (or slightly optimized) which would run on the target machine specified. Items requiring programmer intervention due to ambiguity with respect to standard FORTRAN would be flagged. However, there would be no flagging of inefficient code. 14a

b. Alternative 2, FLAGGED FORTRAN. This alternative would generate more optimized code plus flags to identify areas of the code which should be optimized by the programmer but which require programmer intervention. A slightly more sophisticated version of this alternative would include the generation of extensions to the input language to allow the programmer to act on the flags to generate more optimum code in an on-line interactive environment. 14b

c. Alternative 3, MAXIMALLY OPTIMIZED TARGET CODE. The result of the cross compiler in this alternative would be relocatable object code with maximum optimization for the target machine. Results with IVTRAN would indicate that one would get more efficient programs from this alternative than could probably be obtained using the best optimization techniques available with FORTRAN compilers supplied by the vendors. 14c

10. There are several options available for attacking any of these alternatives. Existing IVTRAN is written in FORTRAN and runs on a PDP 10 under the TENEX operating system. One option would be to develop any of the alternatives on an existing PDP 10 in the ARPA net and make the cross compiler available to SENET users over the ARPA net. A second family of options would be to develop the cross compiler to run on one or more of the computers in SENET. It is important to understand that these options are not necessarily exclusive. It would probably make sense to develop a cross compiler on a TENEX system initially. Then the compiler could be used to translate itself to run on any of the AMC SENET machines, since the cross compiler is a FORTRAN program except for a small amount of code which is written in machine language. 15

11. Table 2 gives a summary of the options available and some approximate time and cost estimates to develop the various options. Costs are stated in terms of man years of effort. To convert to dollars, assume one man year would cost approximately $50K. For those options involving TENEX computer time, add approximately one half of the labor costs. A rough estimate of the labor involved to develop a cross compiler on a TENEX machine, to generate unoptimized FORTRAN, is one man year with an elapsed time of approximately 6

months. Figuring in TENEX computer time, this alternative would probably cost us approximately $75,000. The end column in Table 2 shows that it would take approximately one additional man year of effort to move the cross compiler developed on TENEX to either an 1108 or the Burroughs 5500 computers. The time required to move the unoptimized FORTRAN compiler to an IBM 360 would be substantially higher. The best estimate Steve Warshall could give was "less than 2 man years." In any case we can have an unoptimized FORTRAN cross compiler operational on one of the computers in the AMC SENET for a total cost of approximately $125K, except for IBM 360 which would run closer to $175K total. Alternative 2 would logically be developed from Alternative 1. Alternative 2, the the "Flagged FORTRAN" alternative would require approximately 2 man years of effort and would take approximately 9 months total to complete. This is not 9 months in addition to Alternative 1, but is 9 months total . The effort involved to move the alternative to an AMC machine once it was developed on TENEX would be approximately the same as for Alternative 1.

**********TABLE 2**********

Altern, on TENEX	Labor to Develop to develop on TENEX	an AMC Machine	Elapsed Time Alternative to	Labor to move
				6 1 3 5
1 manyear		6 mos	6 1 6 5	1
0 0 0 0				
0 8 0				
2	2 manyears		9 mos	1 1 1 1
e e e				
s s s				m
s s s				y
t t t				
h h h				
a a a				
n n n				
1 2 1				

Alternative			Labor to develop on		
360	6600	1108		3	4
1/2	4 1/2	2 1/2	manyears		

****

12. Alternative 3 is considerably more complex. As shown in Table 2, the simplest alternative would be to develop a complete compiler

which would generate target code only for a Univac 1108. This would require approximately 2 1/2 man years. One would essentially build on a base by first developing alternative 2 and then writing the target code generator. Development of target code generators for 360 and 6600 computers would be considerably more complicated and would require a total of approximately 4 1/2 man years of effort and 15 to 18 months in elapsed time to accomplish. It should be pointed out that once one spent 4 1/2 years to develop a cross compiler which would run on an IBM 360 and which would generate target code for an IBM 360, it would still require an additional 2 1/2 man years of effort to develop the target code generator which would run on that 360 and generate object code for a 6600 and would also require a substantial amount of additional time to develop a target code generator for a Univac 1108. 23

13. Near the end of the meeting, we asked Steve Warshall why we should consider IVTRAN rather than some other FORTRAN translators, if we went the route of only cross compiling from FORTRAN into FORTRAN Steve stated that first of all we should talk to other software houses which might be able to develop FORTRAN cross compilers based on their existing FORTRAN translators. However, he pointed out that using IVTRAN we would essentially only be paying the marginal cost of extending IVTRAN to handle the type of thing we are looking for, and furthermore we would be getting the benefit of the global optimization which is already built into IVTRAN. He stated that the initial cost to NASA of developing IVTRAN was approximately 2 million dollars. the 100,000 to 200,000 dollar cost to extend IVTRAN along the lines described above does not represent the true development cost of the system. 24

14. CONCLUSIONS 25

a. It is feasible to develop a cross compiler which would accept FORTRAN from any of the computers in the AMC SENET and which would produce either FORTRAN or object code for any of the computers in the AMC SENET. 25a

b. The cost to develop such a cross compiler varies widely depending on the degree of sophistication desired. 25b

c. The cross compiler developed would still require some intervention by programmers to handle "nonstandard FORTRAN" which exists in many of the programs run in the AMC SENET and indeed in most FORTRAN programs. 25c

d. The degree of sophistication desired is related to the amount of optimization required which in turn would be related to the benefits to be derived from such a cross compiler. 25d

e. Whatever degree of sophistication we chose to go with, we would still have to develop an in-house capability to maintain and extend the cross compiler or we would have to retain the developing firm to maintain and extend the compiler. If the capability were developed in-house (unlikely) this might form the nucleus of a Scientific and Engineering Central System Design Agency. It is quite likely that the cross compiler would evolve to handle more complicated FORTRAN structures as they were developed by any of the vendors having machines in the AMC SENET. 25e

15. RECOMMENDATIONS 26

a. I recommend the establishment of a program to develop an unoptimized FORTRAN cross compiler and install it on an AMC machine. This should cost approximately $125K. I believe this would be worth while in terms of savings which could be generated by avoiding conversion of some of the large FORTRAN programs which constantly come into our laboratories. I have seen a number of conversion efforts for large models being brought into AMC which required expenditures between $50K and $100K over the last several years. Therefore, I recommend that we propose development of such a cross compiler to the Scientific and Engineering Computing Council and the Computer Network Steering Committee and if the Council and the Steering Committee agree, I propose that we charter a group drawn from AMC Scientific and Engineering computing facilities and their users to develop specifications for a competitive package to develop the cross compiler. 26a

b. At the time a group to develop specs is formed, this group should attempt to identify additional savings which might be generated from a more sophisticated compiler and to identify the set of users who might benefit most. Depending on the benefits which could be achieved, the group would develop specifications for a cross compiler to operate on one or more AMC SENET machines per alternative 1, 2, or 3. Since the primary benefit would be to R&D programs, I recommend that we seek funding from the AMC Deputy for Laboratories, when we have assembled all the relevant information. 26b

c. The cross compiler may "sell" only if a using scientist can compile, collect data files from one or more machines to the target machine and run (execute) the cross compiled program, all in one try. The National Software Works (NSW) project is probably going to be the only feasible way to do this in the next several years. Therefore, we should pursue the possibility of making the cross compiler available within SENET via the National Software Works with AMC computers tied together through the ARPA net or its successor if DCA assumes management control of the ARPA net. 26c

Ronald P. Uhlig
Chief, Scientific
and Management Information
Division

'SUPER-FORTRAN Cross Compiler'

(J31510) 17-DEC-74 14:03;;;; Title: Author(s): Ronald P. Uhlig/RPU;
Distribution: /JCG([ACTION]) JAA([INFO-ONLY]) JCF([INFO-ONLY]
) SMT([INFO-ONLY]) RPU([INFO-ONLY]) ; Sub-Collections: NIC;
Clerk: RPU; Origin: < UHLIG, SUPFOR,NLS;9, >, 17-DEC-74 13:53
RPU ;;;;####;

LAC 18-DEC-74 05:30 31511

copy of STALOG directory request

I sent this by sendmail last week, but havent heard anything, so i thought I'd send a copy via the journal to be sure you got it. Please keep me informed on status of the request. I am letting these people tag along on my directory until we get this account set up.

copy of STALOG directory request

11-DEC-74 12:20:16,1691
Date: 11 DEC 1974 1220-PDT
From: CRAIN
Subject: AFDSDC Directories at office 1
To: feedback
cc: mclindon, crain 1

Hi,
sorry I took so long to get back to you, i've been(and still am) up to my ears in (VERY HUNGRY) alligators, First of all, the accounts ARIAIL,ZIEBELL,and MSTONE are working fine, 2

On the other hand, I think we have had a synchronization problem in the STALOG account, I think we are both hung in a Waiting Input loop: To fix that, if the stalog directory and IDENTs havent been set up by the time you read this message, dump all previous information pertaining to that process, and start from scratch with the following: 3

INFORMATION FOR DIRECTORY REQUEST 4

Directory Name: STALOG 4a

Account: same as crain 4b

Password: DSDCLG 4c

Alloted Disk Pages: 800 4d

Default Protecton: 770000 4e

INFORMATION FOR INDIVIDUAL IDENT ENTRY (source: NIC requirement) 5

Name:

Last	First	Middle Initial	
Lejeune	Flanoid	F	
Adams	Silas	D	
Shellhammer	Linda	f	
Brantley	Marry	J	
Hawes	Iva	D	5a1

Home Organization (If host, use host name): GUNTER
Phone:(205)279-4521 5b

U.S. Mail Address:
STALOG Development Branch
Directorate of Logistics Systems

LAC 18-DEC-74 05:30 31511

copy of STALOG directory request

Air Force Data Systems Design Center
Gunter Air Force Station, Alabama 36114 5c

Network Mailbox:
STALOG @ OFFICE-1
NLS Mailbox: OFFICE-1
Delivery (Journal or Network):Journal
Function:?? 5d

The sooner this account can be made to appear, the better
Thanks for the help.
/Larry Crain
------- 6

copy of STALOG directory request

(J31511) 18-DEC-74 05:30;;;; Title: Author(s): Lawrence A. Crain/LAC; Distribution: /FEED([ACTION]) CKM([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: LAC; Origin: < CRAIN, MSGACCTS.NLS;1, >, 18-DEC-74 05:08 LAC ;;;;####;

SMT 18-DEC-74 05:35 31512

Your request to use BRL node to get one the 'system'

Prof. Potter, We would be glad to have you use our systemm. Just a quick note tolet you know that we use and 'ANTS' system to interface to the network. I think that you will be able to use our system with approximately 5 minutes instruction. However, I will have to leave you a note sometime, tomorrow or the next day as the press of events today preclude my taking the time to enter the info. The phone number is;yes, I was just in the midst of answering your phone call in sendmail

1

SMT 18-DEC-74 05:35 31512

Your request to use BRL node to get one the 'system'

(J31512) 18-DEC-74 05:35;;;; Title: Author(s): Stan M. Taylor/SMT; Distribution: /DAP([ACTION]) JHB([INFO-ONLY]) JCN([INFO-ONLY]) SMT([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: SMT;

operating instructions

the following instructions are for operating the execuport 300. 1

after plugging in execuport, turn power on. 2

dial into given number for your area. 3

place receiver into proper cradle on the execuport. 4

typein a ctrl e (return). 5

if you recve this message (hello 322#: 41), typein d c e line feed; login 43 line feed. 6

at this level you should be into tenex. if so you will receive a message telling you so. 7

at this point you must decide what you would like to do . 8

operating instructions

(J31513) 18-DEC-74 06:04;;;; Title: Author(s): John Cianfione/JCF;
Distribution: /JCF([ACTION]) ; Sub-Collections: NIC; Clerk: JCF;

JNH 18-DEC-74 09:52 31514

new id

Please add the following idents 1

Steve P Bailey 1a

Director NSA ...etc
Attn: Steve Bsiley,Bailey, R253 1a1

Access to: 1a2

TAGGART 1a2a

NSA 1a2b

Thanks... Jess 2

JNH 18-DEC-74 09:52 31514

new id

(J31514) 18-DEC-74 09:52;;;; Title: Author(s): Jesse N. Hill/JNH;
Distribution: /JCN([ACTION]) JHB([ACTION]) MLK([ACTION])
BOBM([ACTION]) ; Sub-Collections: NIC; Clerk: JNH; Origin:
< HILL, NEWID,NLS;2, >, 18-DEC-74 09:48 JNH ;;;;####;

DAp 18-DEC-74 11:09 31515

after your visit

Brief note about a short conversation with Ernie after your visit.

DAP 18-DEC-74 11:09 31515

after your visit

Jim, I caught Ernie today for a couple minutes. He says our continued participation in OFFICE-1 is up to Col. Kibler, and should be decided by mid-January. If we continue on the system he had assumed I would be the architect, so that will be fine all around if there's anything to be architect of.

I enjoyed the time we spent working together. It was helpful if not revolutionary; I'll be trying some of the things you suggested. For example, I think I managed to start a new paragraph in the middle of this message.

Happy Holidays,
Dave

1

DAP 18-DEC-74 11:09 31515

after your visit

(J31515) 18-DEC-74 11:09;;;; Title: Author(s): David A. Potter/DAP; Distribution: /JHB([ACTION]) DAP([INFO-ONLY]) EJA2([INFO-ONLY]) FEEDBACK([INFO-ONLY]) ; Sub-Collections: NIC FEEDBACK; Clerk: DAP;

RLR 18-DEC-74 12:35 31516

Good to see you again!

Well, despite noise in phone lines and elsewhere it was great to heere again, May the phone co shape up... 1

RLR 18-DEC-74 12:35 31516

Good to see you again!

(J31516) 18-DEC-74 12:35;;;; Title: Author(s): Rudy L. Ruggles/RLR;
Distribution: /MG([ACTION]) SMR([ACTION]) JHB([INFO-ONLY]) ;
Sub-Collections: NIC; Clerk: RLR;

Thur, nls session

The Thur, session will begin at 10 AM sharp. 1

Thur, nls session

(J31517) 18-DEC-74 16:42;;;; Title: (Unrecorded) Title:
Author(s): Pat Whiting O'Keefe/PWO; Distribution: /CAG2([ACTION])
KLM([ACTION]) PWO([INFO-ONLY]) ; Sub-Collections: NIC; Clerk:
PWO;

DLS 19-DEC-74 08:45 31518

Draft Statement of Work for Continuation of Office-1

Please take a look at this, and make any comments etc. Especially interested in the system load definition. We have a week or two here to effect changes.

DLS 19-DEC-74 08:45 31518

Draft Statement of Work for Continuation of Office-1

(sow)The intent of this statement of work is to "unitize" the NLS service, so that when an organization wants to buy in, increase or decrease their commitment, this can be accomplished with minimal contractual pain. It now takes a pile of paper and a couple of months to process an engineering change for each site. I also hope that this will allow SRI more flexibility to adjust computer resources, goto Office-2 etc. 1

ROME AIR DEVELOPMENT CENTER
GRIFFISS AIR FORCE BASE
NEW YORK

STATEMENT OF WORK

FOR

WORKSHOP UTILITY SERVICE

PR B-5-3294

19 DEC 74

TABLE OF CONTENTS

PR B-5-3294

RESEARCH AND TECHNOLOGY WORK STATEMENT

1,0 Objective: The objective of this effort is to provide knowledge workshop service to DOD organizations and their contractors who have access to the ARPANET.

2,0 Scope: This service includes:

providing access via the ARPANET to a current version of the oN Line System (NLS),

managing the computer facility running NLS to assure responsive service,

training in the display, typewriter and deferred execution versions of NLS,

providing current documentation for the above versions,

providing assistance to project leaders at each site in the formulation, development and implementation of augmented knowledge work procedures and methods within their respective environments,

providing appropriate terminal equipment for use of the various versions of NLS,

and providing interfaces to other processes and media not directly accessible via the ARPANET.

3,0 BACKGROUND:

The Augmentation Research Center (ARC) at SRI has developed a general purpose computer based augmentation system designed to support much of the daily activity of knowledge workers. Under contract F30602-C-74-0076 NLS was first made available in a stable and reliable manner for experimental use by selected members of the DOD community connected to the ARPANET. During the past year NLS and its associated procedures have become an integral part of several ARPA, Army, Navy and Air Force organizations, as well as their contractors.

The transfer of a complex technology from the research environment to operational use requires detailed planning and attention. The success of NLS in the above organizations was due in large part to the SRI effort aimed explicitly at the technology transfer problem. The focus on training, documentation and user development activities

are as important at this stage as further development of the system itself.

The purpose of this effort then, is not only to procure computer services, but people services to assist in the smooth transfer of the technology, knowledge, procedures and methods; which together can make an important positive impact on the productivity of knowledge workers.

4.0 TASKS/TECHNICAL REQUIREMENTS:

The contractor shall provide "units" of workshop utility service as required. This unit will consist of people services and computer services. The overall ratio of manhours to computer hours provided should be approximately 1:1, ie for every hour that the computer facility is made available, at least an hour of people services should be given.

A unit of service shall consist of:

access via the ARPANET to a PDP-10X running a current "responsive" version of NLS for a minimum of 20 hours a day, 7 days a week.

a minimum of 5 directories, with at least 300 pages of online disc storage per directory.

updated user documentation as required.

on-site training as required.

technical guidance in applying the technology as required.

A key word in the above definition of "unit" is "responsive". The response of the system, ie, the rapidity with which it executes commands and provides feedback, is dependent on many factors;

the number of people simultaneously using the system,

the types of terminals they are using

and the kind of work they are doing.

Experience under contract F30602-C-74-0076 indicates that new organizations will wish to obtain Workshop Utility Service. Existing organizations will wish to add new users or will change their type of use of the system. These changes all affect the response time, but cannot be fully predicted ahead of time. It is also recognized that computing resources can only be added in incremental units.

Additional core, disc, drum and CPU capacity may be required during the course of this effort.

The primary measure of system response shall be the load average. If the load average exceeds 4.5 during prime time (08:00 to 17:00 Eastern time) for more than 50% of the time during any 2 week period, then the contractor shall acquire and install appropriate additional computing resources to decrease the load average, and hence increase the response time.

The contractor shall investigate alternative CPU allocation and pricing algorithms, with the goal of devising an allocation and charging scheme which more accurately reflects computer resource usage than does the current group allocation scheme. The most promising algorithm will be installed on an experimental basis, tested and modified as necessary.

The contractor shall provide equipment and microfilm output services as necessary to individual sites to facilitate the use of NLS via the ARPANET. The following types of equipment and services may be required. They are in addition to the basic unit of service described above.

Display workstations

Graphics workstations

Typewriter workstations

Digital cassette recorders

Modems

Printers

Computer Output to Microfilm (COM) services

5.0 REPORT REQUIREMENTS:

All reports will be prepared using NLS and distributed using the Sendmail subsystem to the project engineer at each site.

Weekly system usage reports, by organization, by individual.

Weekly system loading reports.

Quarterly management reports.

A report describing alternative allocation and pricing algorithms;

their merits and deficiencies, with the algorithm recommended for experimental implementation,

A report describing the test results of the implemented algorithm,

6.0 GOVERNMENT FURNISHED FACILITIES AND EQUIPMENT:

Misc terminals and associated equip from AF30602-C-72-0313,

DLS 19-DEC-74 08:45 31518

Draft Statement of Work for Continuation of Office-1

(J31518) 19-DEC-74 08:45;;;; Title: Author(s): Duane L. Stone/DLS; Distribution: /KWAC([ACTION]) ELF([INFO-ONLY]) EJK([INFO-ONLY]) JLM([INFO-ONLY]) FJT([INFO-ONLY]) ; Sub-Collections: RADC KWAC; Clerk: DLS;

DLS 19-DEC-74 09:07 31519

Net Connection Destroyed When Host Dies

As an after thought, when the message 'Net Trouble' appears, it is sometimes possible to regain a connection to Office-1 with ^C.

DLS 19-DEC-74 09:07 31519

Net Connection Destroyed When Host Dies

Ref (,24781)...I have no experience with the lineprocessor, but when the host crashes while using the IMLAC and the "Host Not Responding" message appears, the Network connections are broken also. We have to do an @1 43 to get reconnected to Office-1. 1

DLS 19-DEC-74 09:07 31519

Net Connection Destroyed When Host Dies

(J31519) 19-DEC-74 09:07;;;; Title: Author(s): Duane L. Stone/DLS; Distribution: /DVN([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: DLS;

practice file

will there be anymore practice sessions after this moring. 1

practice file

(J31520) 19-DEC-74 11:41;;;; Title: (Unrecorded) Title:
Author(s): Carolyn A. Grimm/CAG2; Distribution: /PWO([ACTION]) KLM(
[ACTION]) SRL([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: CAG2;

FGB 19-DEC-74 12:05 31521

test message

This is a test message from leslie! 1

FGB 19-DEC-74 12:05 31521

test message

(J31521) 19-DEC-74 12:05;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /ILA([ACTION]) CMC([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: FGB;

Intel fixup

Dec, 19,1974 1

Coaches 1 and 3 are now in working condition failure being as follows. 1a

Coach 1: only minor misadjustments of front panel switches. 1a1

Coach 2: minor misadjustments of front panel switches as well as shorting out of three front panel switches by SIM08 board. 1a2

Coach 0 is now working with failure do to broken power switch, as with the other two intels the front panel swtitches were misadjusted. 1b

Intel fixup

(J31522) 19-DEC-74 12:08;;;; Title: Author(s): S. P. Noga/SPN;
Distribution: /SPN([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: SPN;
Origin: < TAGGART, BAILEY,NLS;4, >, 19-DEC-74 12:05 SPN ;;;;####;

FGB 19-DEC-74 12:35 31523

request for new ident

Jim, please generate an ident for Leslie Ann Houghton and make it valid for BOTH the NALCON and the MATHSCI directories. If you get it right this time, I'll buy you a round of drinks. Regards, Frank 1

Directory name:	NALCON
Ident:	III
Account:	same as architect
Password:	PPP
Disk pages:	300
Allocation group:	GGG
Default protection:	770000
Person's name:	leslie ann houghton
----------	1a

Ident Info: 1b

Address: 1b1

Naval Ship Research & Development Center, Code 1809,
Bethesda, Md. 20084 1b1a

Phone: 1b2

202-227-1297 1b2a

FGB 19-DEC-74 12:35 31523

request for new ident

(J31523) 19-DEC-74 12:35;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /JCN([ACTION]) JHB([ACTION]) FEEDBACK([INFO-ONLY]) ; Sub-Collections: NIC FEEDBACK; Clerk: FGB;

Network Working Group
Request for Comments: 678
NIC: 31524

J. Postel
(SRI-ARC)
19 December 1974

Standard File Formats

Introduction

In an attempt to provide online documents to the network community we have had many problems with the physical format of the final documents. Much of this difficulty lies in the fact that we do not have control or even knowledge of all the processing steps or devices that act on the document file. A large part of the difficulty in the past has been due to some assumptions we made about the rest of the world being approximately like our own environment. We now see that the problems are due to differing assumptions and treatment of files to be printed as documents. We therefore propose to define certain standard formats for files and describe the expected final form for printed copies of such files.

These standard formats are not additional File Transfer Protocol data types/modes/structures, but rather usage descriptions between the originator and ultimate receiver of the file. It may be useful or even necessary at some hosts to construct programs that convert files between common local formats and the standard formats specified here.

The intent is that the author of a document may prepare his/her text and store it in an online file, then advertise that file by name and format (as specified here), such that interested individuals may copy and print the file with full understanding of the characteristics of the format controls and the logical page size.

Standardization Elements

The elements or aspects of a file to be standardized are the character or code set used, the format control procedures, the area of the page to be used for text, and the method to describe overstruck or underlined characters.

The area of the page to be used for text can be confusing to discuss, in an attempt to be clear we define a physical page and a logical page. Please note that the main emphasis of this note is to describe

the standard formats in terms of the logical page, and that it is up to each site to map the logical page onto the physical page of each of their devices.

Physical Page

The physical page is the medium that carries the text, the height and width of its area are measured in inches.

The typical physical page is a piece of paper eleven inches high and eight and one half inches wide.

Typical print density is 10 characters per inch horizontally and 6 characters per inch vertically. This results in the typical physical page having a maximum capacity of 66 lines and 85 characters per line. It is often the case that printing devices limit the area of the physical page by enforcing margins.

Logical Page

The logical page is the area that can contain text, the height of this area is measured in lines and the width is measured in characters.

A typical logical page is 60 lines high and 72 characters wide.

Code Set

The character encoding will be the network standard Network Virtual Terminal (NVT) code as used in Telnet and File Transfer protocols, that is ASCII in an eight bit byte with the high order bit zero.

Format Control

The format will be controlled by the ASCII format effectors:

Form Feed <FF>

Moves the printer to the top of the next logical page keeping the same horizontal position.

Carriage Return <CR>

Moves the printer to the left edge of the logical page remaining on current line.

Line Feed <LF>

Moves the printer to the next print line, keeping the same horizontal position.

Horizontal Tab <HT>

Moves the printer to the next horizontal tab stop.

The conventional stops for horizontal tabs are every eight characters, that is character positions 9, 17, 25, ... within the logical page.

Note that it is difficult to enforce these conventions and it is therefore recommended that horizontal tabs not be used in document files.

Vertical Tab <VT>

Moves the printer to the next vertical tab stop.

The conventional stops for vertical tabs are every eight lines starting at the first printing line on each logical page, that is lines 1, 9, 17, ... within the logical page.

Note that it is difficult to enforce these conventions and it is therefore recommended that vertical tabs not be used in document files.

Back Space <BS>

Moves the printer one character position toward the left edge of the logical page.

Not all these effectors will be used in all format standards, any effectors which are not used in a format standard are ignored.

Page Length

The logical page length will be specified in terms of a number of lines of text.

Page Width

The logical page width will be specified as a number of characters.

Overstriking

Overstriking (note that underlining is a subset of overstriking) may be specified to be done in one or both of the following ways, or not at all:

By Line

The composite line is made up of text segments each terminated by the sequence <CR><NUL> except that the final segment is terminated by the sequence <CR><LF>.

By Character

Each character to be overstruck is to be immediately followed by a <BS> and the overstrike character.

End of Line

The end of line convention is the Telnet end of line convention which is the sequence <CR><LF>. It is recommended that use of <CR> and <LF> be avoided in other than the end of line context.

Standard Formats

Format 1 [Basic Document]

This format is designed to be used for documents to be printed on line printers, which normally have 66 lines to a physical page, but often have forced top and bottom margins of 3 lines each.

Active Format Effectors
<FF>, <CR>, <LF>.
Page Length
60 lines.
Page Width
72 Characters.
Overstriking
By Line.

Format 2 [Terminal]

This format is designed to be used with hard copy terminals, which in the normal case have 66 lines to a physical page. It is expected that there are no top or bottom margins enforced by the terminal or its local system, thus any margins around the physical page break must come from the file.

Active Format Effectors
<FF>, <CR>, <LF>, <HT>, <VT>, <BS>.
Page Length
66 lines.
Page Width
72 Characters.
Overstriking
By Character.

Format 3 [Line Printer]

This format is designed to be used with full width (11 by 14 inch paper) line printer output.

Active Format Effectors
<FF>, <CR>, <LF>.
Page Length
60 lines.
Page Width
132 Characters.
Overstriking
None.

Format 4 [Card Image]

This format is designed to be used for simulated card input. The page width is 80 characters, each card image is followed by <CR><LF>, thus each card is represented by between 2 and 82 characters in the file. Note that the trailing spaces of a card image need not be present in the file, and that the early occurence of the <CR><LF> sequence indicates that the remainder of the card image is to contain space characters.

Active Format Effectors
<CR>, <LF>.
Page Length
Infinite.
Page Width
80 Characters.
Overstriking
None.

Format 5 [Center Document]

This format is intended for use with documents to be printed on line printers which normally have 66 lines to the physical page but enforce top and bottom margins of 3 lines each. The text is expected to be centered on the paper. If the horizontal printing density is 10 characters per inch and the paper is 8 and 1/2 inches wide then there will be a one inch margin on each side.

Active Format Effectors
<FF>, <CR>, <LF>.
Page Length
60 Lines.
Page Width
65 Characters.
Overstriking
By Line.

Format 6 [Bound Document]

This format is intended for use with documents to be printed on line printers which normally have 66 lines to the physical page but enforce top and bottom margins of 3 lines each. If the horizontal printing density is 10 characters per inch and the paper is 8 and 1/2 inches wide then the text should be positioned such that there is a 1 and 1/2 inch left margin and a one inch right margin.

Active Format Effectors
<FF>, <CR>, <LF>.
Page Length
60 Lines.
Page Width
60 Characters.
Overstriking
By Line.

Implementation Suggestions

Overflow

Overflow can result from two causes, first if the physical page is smaller than the logical page, and second if the actual text in the file violates the standard under which it is being processed.

In either case the following suggestions are made to implementors of programs which process files in these formats.

Length

If more lines are processed than fit within the minimum of the physical page and the logical page length since the last <FF>, then the <FF> action should be forced.

Width

If more character positions are processed than fit on the minimum of the physical page width and the logical page width since the last <CR>, then characters are discarded up to the next <CR>.

or

If more character positions are processed than fit on the minimum of the physical page width and the logical page width since the last <CR>, then the <CR> and <LF> actions should be forced.

References

A. McKenzie "TELNET Protocol Specification," Aug-73, NIC 18639.

"USA Standard Code for Information Interchange," United States of America Standards Institute, 1968, NIC 11246.

NWG/RFC# 678 JBP 19-DEC-74 14:25 31524
Standard File Formats

(J31524) 19-DEC-74 14:25;;;; Title: Author(s): Jonathan B. Postel/JBP; Sub-Collections: NIC NWG SRI-ARC; RFC# 678; Clerk: JAKE; Origin: < NETINFO, RFC678,NLS;2, >, 19-DEC-74 14:21 JAKE ;;;;####;

PWO 19-DEC-74 14:25 31525

testing responsiveness

hi are you there ? let me know in three days. Thanks Ralph bye. 1

PWO 19-DEC-74 14:25 31525

testing responsiveness

(J31525) 19-DEC-74 14:25;;;; Title: (Unrecorded) Title:
Author(s): Pat Whiting O'Keefe/PWO; Distribution: /RJ3([ACTION])
PWO([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: PWO;

EA1108 in ARPA net

MEMORANDUM FOR: Director of Management Information Systems 1

SUBJECT: Feasibility of Adding UNIVAC 1108 at Edgewood Arsenal to the ARPA Net 2

1. At the National Software Works Project meeting, I asked Mr. Steve Crocker (formerly with ARPA) of the University of Southern California, Information Sciences Institute whether anyone had yet developed a network control program for bringing the UNIVAC 1108 into the ARPA net. Steve told me that none was available as yet . He also said that there were many people he had come into contact with in the ARPA net community who wanted to use tools which are only available for 1108s. He asked whether we might be interested in bringing an 1108 into the net and if so offered to meet with us to explore the possibility. 3

2. The 1108s at White Sands Missile Range are nearly saturated and would probably not be good machines to attempt to place on the ARPA net. The 1106 at Natick Labs has time available, but we would probably have to pay a substantial annual cost to tie into an existing network node in the Boston area. The Edgewood Arsenal UNIVAC 1108 is close to the IMP at BRL and is already heavily used by BRL. Furthermore when I asked Dr. Taylor at BRL he said they would be interested in using the machine over the ARPA net and that it would facilitate the types of things they do. In addition the 1108 at Edgewood is relatively lightly loaded (approximately 1 1/2 shifts) and it serves a number of users throughout AMC. Current users include ECOM, BRL, HDL, and Rock Island Arsenal (small usage). In addition, the Army Research Institute in Washington, D. C. uses the 1108. Current usage is primarily over dial up telephone lines. Rock Island Arsenal has been limited in their use of the system because the 1108 will not accept the IBM terminals which are Rock Island Arsenal's primary means of communication for remote job entry. The ARPA net protocols would solve this problem and make the 1108 equally accesible to anyone in AMC who could get to the ARPA net. Furthermore it might be possible for many of the jobs to be transmitted over autovon to the BRL ANTS system (or, more likely its successor - ELF) and then to the 1108. 4

3. As a result of these considerations, I arranged for Steve Crocker and myself to meet at Edgewood Arsenal with Stan Goldberg and several members of his staff, plus Stan Taylor from BRL, to discuss the feasibility of bringing the Edgewood Arsenal UNIVAC 1108 into the ARPA net. The meeting was held 13 December 1974. 5

4. Questions related to the justification for bringing the 1108 into the ARPA net as well as the technical feasibility of doing so were discussed. However, primary emphasis at this meeting focused on the technical feasibility and the cost of putting the machine on the net.

The primary justification would appear to be the possibility of attracting current defense contractors who have access to the ARPA net into using tools developed for the 1108 which they could only get at on the 1108 at Edgewood Arsenal if it were in the ARPA net. Thus Edgewood would have to expand its business outside of AMC at least until such time as the investment costs related to bringing the machine into the ARPA net were paid. Because of the time currently available, this should pose no problem. Probably enough outside revenue could be obtained to make the resulting initial investment cost to AMC negligible. 6

5. Technically the 1108 would be tied to the ARPA net through the IMP located at BRL approximately 10 miles away. A 50 kilobit line would have to be run from the IMP to Edgewood Arsenal where it would connect to a PDP 11. The PDP 11 would connect to the UNIVAC 1108. The PDP 11 would communicate with the IMP via the very distant host interface protocol which has been developed for ARPA for this kind of application. Some software to interface with the 1108 would have to be developed for the PDP 11 and a network control program might have to be developed for the 1108 . 7

TABLE 1 8

	SIMPLE BATCH	FULL INTERACTIVE
1108 SOFTWARE	$0	ONE MY
PDP-11 SOFTWARE	TWO MY	ONE MY
HARDWARE PDP-11 + interfaces	$100K	$100K
1108 CORE	negligible	10-40K total (2-10K code)

9

6. Two options are available for interfacing the PDP 11 with the 1108. One option would make the PDP 11 look like a UNIVAC compatible

terminal to the 1108. This is labeled as the "simple batch" option in table 1. This option would involve negligible software costs for the 1108 but would cost approximately 2 man years of effort for PDP 11 software. The "full interactive" option would involve development of a full network control program for the 1108 which would cost approximately one man year. This would be offset by lower software costs for the PDP 11. Estimates of software costs for either option are approximately one man year. Hardware costs for either option for the PDP 11 plus interfaces are estimated to be 100 K dollars. The simple batch option would have minimal impact on the 1108 memory. However, the full interactive option would require approximately 2 to 10 K words of memory for the network control program code. This would be a part of a total requirement of anywhere from 10 to 40 K words of memory to support the code plus buffers. The principal problem with the full interactive option would be that it might require an additional bank of 65 K words of memory for the UNIVAC 1108 which would add substantially to the recurring costs. 10

7. Because the current communications ports are all in use, it would be necessary to either purchase or lease an additional 4 channels (the smallest increment) at 24 K dollars purchase or 600 dollars per month lease. However, once all users began coming in through the ARPA net, it might not be necessary to keep the additional 4 channels because current communications ports might be freed up . 11

8. The recurring costs to AMC would be minimal . It was estimated that the 50 kilobit communications line from BRL to Edgewood would cost approximately $1,000 per year. It was also estimated that maintenance costs for the system would run 20 to 30 thousand dollars per year. 12

9. Conclusions: 13

a. It is feasible to tie the UNIVAC 1108 system at Edgewood Arsenal into the ARPA net. 13a

b. One time costs would range between 200 and 250 K dollars total plus the cost of additional memory if needed. 13b

c. Annual costs to AMC would be $1,000 per year for communications plus $20K to $30K per year for maintenance. BRL and Edgewood Arsenal would have to negotiate the annual cost of the ARPA net node located at BRL. Currently BRL is paying the 79 K dollars per year cost. Presumably this would be split between BRL and Edgewood Arsenal. 13c

d. There appears to be a potential requirement for UNIVAC 1108 tools among defense contractors within the ARPA community but outside of AMC. Since these are defense contractors, it would be

possible to allow them to use the 1108 at Edgewood on defense related work within current regulations, 13d

e. Potential users of the UNIVAC 1108 via the ARPA net within the Army are the current set of users: Rock Island Arsenal, Electronics Command, BRL, HDL and the Army Research Institute. No immediate advantage to using the 1108 via the ARPA net as opposed to using it over the current dial up lines could be seen. However, an advantage would accrue to these Army users in that any of their terminals could access the system over the ARPA net - not just their UNIVAC 1108 compatible terminals. This would provide the potential for a greatly expanded user community within the Army, 13e

f. The long range potential benefit to AMC is high in terms of vastly increased communications within the AMC S&E user community when enough AMC machines become interconnected, 13f

g. The principle cost justification would be from increased usage due to non-AMC ARPA users, 13g

ACTIONS - It was agreed that the next step is up to Edgewood Arsenal. Dr. Taylor and Mr. Crocker expressed their willingness to help Edgewood Arsenal. Actions to be taken by Edgewood Arsenal are as follows: 14

a. Refine the technical issues so as to get better cost estimates, 14a

b. Develop a strategy for meeting the additional costs which would be associated with putting the 1108 into the ARPA net, 14b

c. Study the potential for outside AMC users and the types of tools they would desire in order to determine whether sufficient users and dollars could be found to meet the additional costs and to determine which of the options, simple batch or full interactive, would be better, 14c

d. When the above actions are completed Edgewood arsenal will get back together again with us to recommend any further actions required, 14d

Ronald P. Uhlig
Chief, Scientific and
Management Information
Division 15

EA1108 in ARPA net

(J31526) 19-DEC-74 20:51;;;; Title: Author(s): Ronald P. Uhlig/RPU;
Distribution: /JCG([ACTION]) JAA([INFO-ONLY]) JCF([INFO-ONLY]
) RPU([INFO-ONLY]) SMT([INFO-ONLY]) ; Sub-Collections: NIC;
Clerk: RPU; Origin: < UHLIG, EA1108,NLS;10, >, 19-DEC-74 20:47
RPU ;;;;####;

RPU 19-DEC-74 21:41 31527

Baran Procurement Work

John, I thought you might be interested in this message that Paul Barran sent me, so I copied it verbatim, and am sending it to you via the Sendmail system, Note particularly what Paul says around statement numbers 46a through 48, By the way the strange numbering isn't mine, That just happened to be the way the Copy Sequential worked out,

19-DEC-74 14:37:53,2277

Net mail from site USC-ISI rcvd at 19-DEC-74 14:37:47

Date: 19 DEC 1974 1438-PST

From: PBARAN at USC-ISI

Subject: uhlig

To: brl at OFFICE-1

cc: pbaran

Hi Ron:

I have been meaning to get back to you for several weeks,

First, let me thank you for your help in the presentations, I do plan to drop by and speak to the people at Ft, Lee on my next scheduled trip by that way, But, I don't have anything scheduled at this time,

After our meeting last monthI had some discussions with Licklider, Frankly, I think I got nowhere other than perhaps alienating them a bit more by needling them on their choice of priorities and values, I expressed the unhappy view that

they may be having too much fun with
secondary fun research instead of dealing with
some of the more important but less pleasant
problems. Basically, their response to our
position that they ought tocreate a program area
in procurement automation was that using an application
area instead of a technology makes them too vulnerable to
outside control. (If the procurement people didn't
like what they were doing, Licklider felt that
they could cut their budget.)

Lick did agree to accept a piece of paper from
us outlining a program area in procurement automation,
but he doubted whether it would fly. Forewarned,
we just got a piece of paper off to him
suggesting instead, a Task Force to look at the
problems, and conduct the needed work within program
areas that ARPA already has underway. Haven't got
any feedback on this as yet, but I'll keep you
informed if anything interesting should develop.

We are coming to an end to our contract with
IPTO. Our bet bet is that they probably won't
be buying anything on procurement. And, from all
we have seen the way that the procurement process
operates, it is too sick a business not to get
careful attention by the information

processing community. The process badly needs reformation. The computer network can be of tremendous help here.

I know that your budget is very tight this year, but what do you think the chances of getting some activity started at AMC might be at this time?

In any event, Merry Christmas.

regards,

Paul

Baran Procurement Work

(J31527) 19-DEC-74 21:41;;;; Title: Author(s): Ronald P. Uhlig/RPU;
Distribution: /JCG([ACTION]) RPU([INFO-ONLY]) ; Sub-Collections:
NIC; Clerk: RPU; Origin: < UHLIG, BARMSG,NLS;2, >, 19-DEC-74
21:39 RPU ;;;;####;

SMT 20-DEC-74 06:42 31528

user names and idents

i have been asked to notify all participants of the AMC SENDMAIL study of member name and idents, They are as follows:

GILBERT	JCG
ARNTSON	JAA
UHLIG	RPU
CIANFLONE	JCF
MITCHELL	HSM
DSMITH	JDS
LEISHER	AEL

Ed von Gehren 1

user names and idents

(J31528) 20-DEC-74 06:42;;;; Title: Author(s): Stan M. Taylor/SMT;
Distribution: /AMC-MIS([ACTION]) BRL([INFO-ONLY]) ;
Sub-Collections: NIC AMC-MIS BRL; Clerk: SMT;

MIKE 20-DEC-74 07:39 31529

resend of draft of KSH letter to Sears, declining cooperation

Larry, this is a resned of something I sent you on Nov-27-74; that makes two documents I sent you that day that were never recevied by you, althogh they do appear in my author branch.

MIKE 20-DEC-74 07:39 31529

resend of draft of KSH letter to Sears, declining cooperation

Mr. M.F. Anderson
Simpson-Sears Limited
222 Jarvis Street
Toronto, Ontario M5B 2B8 1

Dear Mr. Anderson: 2

For the past several months Bell Canada's H.Q. Planning Department and Bell-Northern Research's Systems Engineering Group have been exploring the possibilities of cooperating with Sears in a project designed to test the technical and operational feasibility of a dial pulse coding feature for the your Automated Order Service, as outlined in your letter of July 9, 1974. 3

After considerable negotiations with various groups within Bell-Northern Research we have reached the conclusion that it would be impossible for us to participate in this project at this time. Previously established research priorities within BNR have reduced the emphasis on work of this nature. Specifically, the emphasis in the Automated Transactions and Remote Monitoring project of he Apparatus Development group has shifted away from automated transactions. Since this group was the one that we believed to be the most qualified to tackle a prject of this nature, and since their support is no longer available to us, we are unable to make the technology contribution that we had hoped. 4

I regret the long delay involved in developing this reply, and I hope you will understand that we have done everything in our power here to steer this project toward completion, with an apparent lack of success. I wish you continuing success with the A.O.S. project, and in your plans for extension of the service in the future. 5

Yours sincerely, 6

K.S. Hoyle
Assistant Vice-President (Planning) 7

MIKE 20-DEC-74 07:39 31529

resend of draft of KSH letter to Sears, declining cooperation

(J31529) 20-DEC-74 07:39;;;; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD([ACTION]) ; Sub-Collections: NIC; Clerk: MIKE;